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A STUDY OF THE HONG KONG PUBLIC TELEPOINT SERVICE INDUSTRY : OPPORTUNITIES & STRATEGIES

by

CHENG CHUNG-WING, ALEX
YEUNG TAK-HUNG, ARTHUR
鄭仲榮
楊德雄

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K C Mun

Professor Mun Kin-Chok

Advisor

ABSTRACT

Radio Communication is booming rapidly in Hong Kong for the last 5 years. The worldwide technology development and the needs of the public are pushing for more advanced radio communication technology and better services. Telepoint Service, which can be named as second generation cordless telephone (or shortly as CT2), will be planned to be introduced commercially in late 1991. This new development might carry a far-reaching implications towards meeting a mass market of business and consumer demands for an affordable, highly portable communication services. To enable this new emerging service industry to grow and prosper, the characteristics and constraints affecting its development should be analyzed. This Report looks at the attractiveness and strategy choices of the industry, based on the analysis of the industry structure, technology review and competition. Recommendations, based on the possible strategies employed by respective service operators, are also highlighted.

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A C K N O W L E D G E M E N T

We wish to record our thanks to Professor MUN Kin-chok for his many invaluable advices and guidance throughout the preparation of this Report. His insights, from both academic and business aspects, have led us to combine the technological frame of mind with a business application. We also like to thank all those who spent the time with us for the interview and provided very sensitive information.

We must record our gratitude towards Ms Sharon LI for the typing and re-typing of the manuscript. Only with her diligent effort, work accuracy and patience could this Report be presentable.

CHENG Chung-wing, Alex

YEUNG Tak-hung, Arthur

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CHAPTER I

INTRODUCTION

The Hong Kong radio communication industry has been undergoing phenomenal growth in the last five years time and is forecasted to further grow in the next few years. Some parts of the industry are very close to our daily personal and business lives such as paging and cellular radio telephone. Other less obvious areas include 2-way radio communication used by business and government departments like police and marine; new trunked radio system based on "trunking technique", and the more hi-tech satellite communications.

Hong Kong Government has not monopolized the market and encourages healthy competition which will finally give benefits to the public. In the past ten years, Hong Kong people use two-way radio communication equipment for the business operation and the number of users grows from 8,000 in 1979 to 68,000[1] in 1990. Paging service was firstly introduced in 1973 and grows to 711,000[2] subscriptions in 1990. Although the introduction of cellular telephone system came the last in 1985, it shows rapid compound growth of average 40-50 percent per annum. The success in operating radio communication services has proven to be a good business opportunity and could generate a continuous flow of sizeable profit in the long run.

In entering the 90's, the use of portable phones and paging for mobile radio communication are making significant impact in the personal communication area. A new public cordless telephone service - Telepoint - will be introduced commercially in Hong Kong by late 1991, and is of great interest for study. It is seemingly the

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[1, 2] 1990 Annual Report, Telecommunications Branch, Hong Kong Post Office.

promising technology to fill up the gap where the users require voice communication more than a pager can provide but not upto the full facilities of the cellular telephone. Telepoint Service also carries a great business opportunity and potential as it forms part of the current radio communication service industry. It targets at a mass market of businessmen and consumers with a continuous service income through providing services. Entrepreneurs are encouraged with this new service to look at a long term and large investment in new technology for participating in the radio communication service business.

On the other hand, the Telepoint Service industry also has its risks. The risks stand from the rapid technical changes which might obsolete the product in the near future, uncertainty about the supplier, and a possible "TeleConfusion" created in the market due to such quick and rapid changes between paging and cellular telephone services.

The purpose of this research is to focus and analyze the Telepoint Service industry as a new emerging industry in a fast changing competitive environment. The researchers believe that the study carries both an academic and economic value. Two questions are inherent in this study : Is the Telepoint Service industry a real opportunity? Can this opportunity be profitably realized in the future?

The scope of study will first include an overview of the radio communication service industry in Hong Kong. The characteristics and growth pattern of individual system will be briefly discussed.

After surveying the existing market size and potential for radio communication, the new Telepoint Service industry in providing cordless telephone service is studied. Its technology background,

usage, target market size, positioning, and opportunities are analyzed. An industry profitability summary would be presented to address the attractiveness of the Telepoint Service industry, and whether this is a good opportunity for business investment.

The second part of the research is to analyze the characteristics and constraints of this new emerging service industry. The competitive forces from suppliers, product substitution, buyers, and the competitors themselves will be analysed. Possible strategies that the Telepoint Service industry should adopt in order to survive and prosper will be reviewed.

The last part of the research will attempt to identify and recommend strategies and actions for the individual service operators. With the right match to their strength and weakness, the operators can build up long term competitive advantages over the other firms, and command a substainable above-average profit in the industry.

CHAPTER II

METHODOLOGY

The approach in this study is to firstly analyze the overall radio communication service market in Hong Kong with emphasis on respective market growth and technologies background of individual system. Since Government policy would have determinant influence on the industry development in Hong Kong, it would be addressed in the appropriate part of the Report. The core of the research focuses on the study of development of cordless telephone service - Telepoint Service industry in Hong Kong. The analysis of opportunities and strategies is important for the emerging radio communication service industry.

The research results are mainly based on findings obtained from desk research and interviews with the existing and prospective Telepoint Service operators.[1]

The research involves grouping, organising and arranging available data into illustrations and tables for analysis. Statistical data are collected from publications by Hong Kong Post Office and Hong Kong Trade Statistics. The study of technology trend and innovation require the literature survey of journals of "Telecommunications", "Cellular Business", "Communications", "Telephone Engineer & Management" and other relevant journals.

Interviewing

As there is practically no current literature for revealing the

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[1] Sekaran, Uma. Reseach Methods for Managers: A Skill-Building Approach. John Wiley & Sons, 1984.

market and technological trend of the Hong Kong radio communication services industries, the researchers have to resort to interviews in order to obtain the necessary information and opinions for writing this report.

Existing operators are interviewed in order to understand their reactions towards the opportunities in the radio communication service market. Six existing paging service operators, four existing trunked radio service operators and three existing cellular phone service operators will be the target for interviewing to provide experts' opinions. These operators are occupying the dominant share of the existing radio communication service industries.

Prospective service operators who have shown their interests in running new paging services, trunked radio services, Telepoint Services and digital cellular services, would also be interviewed to study how they are preparing to enter into the industry. Opinions would be carefully considered as experts' comments to such emerging radio service industry.

Government policy is a critical part to determine the success of the radio communication service industries. Officers in-charge from Hong Kong Post Office are interviewed to survey the Government policy towards the development of radio communication in Hong Kong.

All data and viewpoints collected during the interviews would be analysed, summarised, and presented in the appropriate sections of the Report. Most information given out is sensitive and valuable to the competitors in the industry, thus no specific reference would be made.

Sampling Method

The interview is carried out from Judgement Sampling. Such non-probability sampling design involves :

- six paging service operators
- four trunked radio service operators
- three cellular phone service operators
- and four prospective operators submitting the application of licence to run Public Non-Exclusive Telecommunications Service (PNETS) Licence for Telepoint Service

All the above listed companies were first informed about the interview via a letter, then followed by telephone call. The companies names are listed in Appendix 1. They were selected based on their experiences and insights towards the market opportunities in radio communication service industries. They form the representative sample and in the best position to provide the information required.

Structured interviews will be conducted with a predetermined list of questions which will be mailed to the respondents beforehand. As the respondents express their views, the researcher would note the response on the schedule. The same set of questions will thus be asked of all interviewees in the same manner.[2] Sometimes, the researcher might follow a prospective lead from a respondent's answer by asking other relevant questions not on the schedule.

Data Collection

Before designing the questions, literature survey is carried out, particularly on the customer's satisfaction to the public radio services, the future demand, the financial investment and payback of the service network, the solution towards the technology complexity of the system and philosophy in running the services concerned. Because of the complexity of the service network and severe

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[2] Payne, S. L. B. The Art of Asking Questions. Princeton, N. J.: Princeton University Press, 1951.

competition in the industries, the new service network operators would have the characteristics of:

- financial capability for the investment
- technical capability of the service network
- experience in service operation
- political influence to Government
- opening the service with customer oriented business philosophy
- relatively short payback period of the investment

The questions are designed around the above six main considerations. A large part of the questions will concentrate on the Telepoint Service which is the core of the research. A separate list of questions is designed for interviewing with Hong Kong Post Office to collect the comments about Government policy and role in the new service industry. The letters, list of questions and those interviewed are shown in Appendices 2 and 3.

Data Analysis[3]

Based on the literature survey and personal interviews, the market potentials of each service will be developed. In particular, the market potential of the Telepoint Service Industry will be analysed in details to justify whether the service business operation is viable or not.

Structured interview is used to gather the view points and identify the trend in operating the advanced public radio communication networks. Following the summaries of the interviews, a strategy plan of introducing the Telepoint Service in the radio

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[3] McGrath, J. E., Martin J. & Kulka R. A. Judgement Calls in Research. Beverly Hill : Sage, 1982.

communication service in a industry is discussed. Although the plan should be custom-made to the local environment, the operation philosophy is still workable in any other countries for introducing new radio communication services in a deregulated market.

It is also a trend in the developed countries to invite private enterprises in running the service networks which results in a more effective and efficient manner.

Summary

This chapter outlines the approach and methods to collect and analyse date. Due to the complexity of the radio communication technologies and absence of well analysed data, intensive interviews with industry leaders and officers-in-charge from the Hong Kong Post Office form the basic source of information in understanding the Hong Kong market. The opinions expressed and raw data collected will be thoroughly digested and analysed. They will be re-grouped in a marketing perspective and presented in the latter part of this Report.

CHAPTER III

REVIEW OF RADIO COMMUNICATION SERVICES

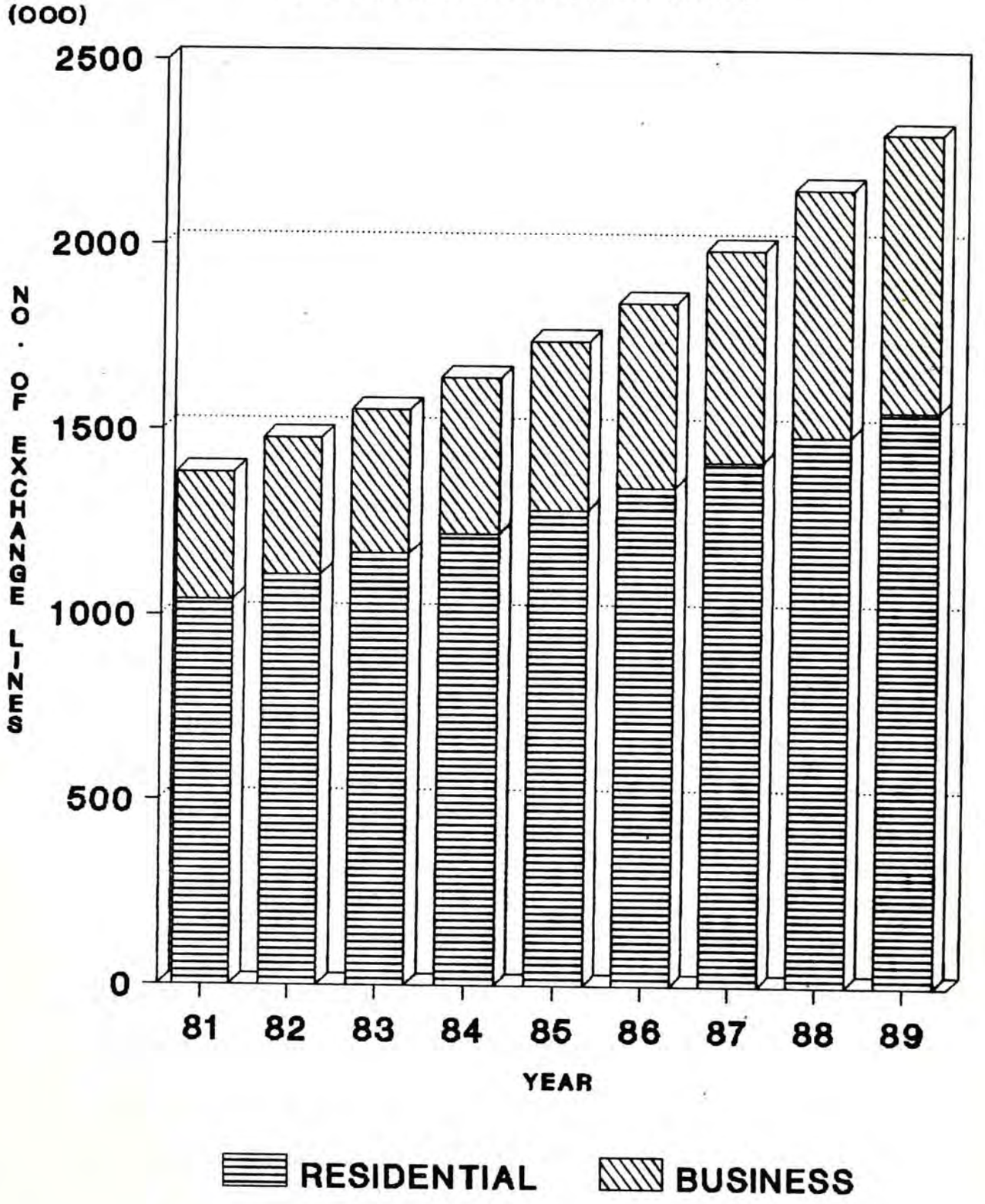
Radio communication services market is not new to Hong Kong. It begins from the simple paging services in 1970s to more sophisticated services in cellular telephone, mobile data and satellite communication. Paging services have been introduced in Hong Kong for a number of years but it has not created strong motivation in the radio communication services market until recently. However, the cellular telephone services market, first approached by Communication Services Ltd (CSL) which is renamed as Hong Kong Telecom CSL Ltd., has put Hong Kong radio communication services industry into a new era. In addition, private mobile radio, trunked radio system, mobile data and satellite form the other parts of the service market. Shortly afterwards, the radio communication services market would have a new segment - Telepoint, which this Report would study in the following chapters. This chapter will review the existing radio communication services market with the illustration of the market potentials for each system.

Line Communication System

Before the studies of radio communication market, particularly on Telepoint Service, it would be better to discuss the line communication market in order to show the growth and demands of rapid and handy communication. The more dynamic and rapid growth markets in the 1980s - such as fax machines PBXs, keyline telephones (Ilustration 3.1) are showing demands in advanced communication.

ILLUSTRATION 3.1

GROWTH OF BUSINESS & RESIDENTIAL LINES IN HONG KONG (1981-1990)



Source : 1990 Annual Report, Telecommunications Branch, Hong Kong Post Office

Table 3.1 indirectly shows the acceptance of new technology from the public and the prosperity of the communication industry. The growth is driven by new technologies. It maintains the growth of the overall communication market. The research will not further elaborate these services as the core is to analyze the Telepoint Service in radio communication services market. The market is shifting to service operation and continues the growth in radio service industry.

Private Mobile Radio System

The name, Private Mobile Radio System, seems to be a bit strange to the readers. But, if it exactly refers to "Walkie Talkie", it would be more familiar. "Walkie Talkie" system can be ranged from the toy for children to the professional radio equipment for police, army, and other business users. Apart from the Government users, Hong Kong currently has around 2,500[1] private mobile radio systems, with the majority of having an average of ten radios per system. Between 100 to 200[2] new systems with 4,000 to 5,000[3] new radios are added each year. Table 3.2 shows the growth of the past ten years. Most of these mobile radio systems are used by small transportation companies from trucks, direct-service vehicles to taxi fleet. It is a retailing market.

Each year, it accounts for HK$80 to 100 millions annual value to the radio communication market. They either provide simple community repeater services (which is installed at a good location and provides relative good coverage) shared by a number of radio users or to provide rental services for temporary use of the radio set.

Trunked Radio System

The simple "Walkie Talkie" system leads to the development of

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1, 2, 3 Figures are provided by the Hong Kong Post Office.

TABLE 3.1

NO. OF SUBSCRIPTION FOR PUBLIC SWITCH TELEPHONE NETWORK PER EACH YEAR (1981-1990)

Year	No. of Fascimile Line	Growth %	No. of Exchange Line	Growth %
1981	447	-	1,383,667	-
1982	848	89.7	1,476,965	6.7
1983	1,380	62.7	1,554,106	5.2
1984	2,417	75.1	1,640,722	5.6
1985	5,548	129.5	1,741,585	6.1
1986	13,232	138.5	1,844,403	5.9
1987	32,200	143.3	1,988,524	7.8
1988	59,876	86.0	2,153,776	8.3
1989	83,322	39.2	2,304,572	7.0
1990	106,545	27.9	2,446,989	6.2

Source : 1990 Annual Report, Telecommunications Branch, Hong Kong Post Office

TABLE 3.2

NO. OF PRIVATE MOBILE RADIO STATION
REGISTERED PER EACH YEAR
(1981-1990)

Year	No. of Base Station	No. of Mobile Station	Growth %
1981	1,686	23,873	-
1982	1,794	27,612	15.7
1983	1,900	30,262	9.6
1984	1,920	32,106	6.1
1985	2,011	38,544	20.1
1986	2,107	42,918	11.3
1987	2,223	50,263	17.1
1988	2,343	58,980	17.3
1989	2,500	63,689	8.0
1990	2,553	67,956	6.7

Source : 1990 Annual Report, Telecommunications Branch, Hong Kong Post Office

the trunked radio system which is using the principle of sharing a pool of resources by different users.[4] The congestion and the limited spectrum put the demands into red hot. The Post Office is promoting the use of trunking technology. This puts discipline into the situation, allows a better site for transmitting signals and permits simple licensing through the company running the system. Running the trunked radio system becomes a new radio communication service. Such business is like providing a paging service. Each user needs to buy the equipment and pays the monthly subscription fee for using the radio network. The service was launched in 1989, and shortly afterwards, several companies joined the competition. It is a new blood in the radio communication service industry and induces entrepreneurs to be aware of another opportunity in running a profitable radio service business.

By the end of 1990, the Hong Kong Post Office has awarded five licences for running territory-wide trunked radio systems which could provide a pool of radio channels for all users to share over the whole territories. These five licences are held by four companies, namely Mobile One, Hutchison Telephone, First Pacific and Kin Son.The target customers are the users of the private mobile radio. Table 3.2 reflects the market potential of the services. The revenue potential will be at least HK$110 millions per annum if the service is well established. The business is to provide better services in radio coverage, easy licence application, and reliable communications at reasonable service charge. The system can support both data and voice communication and other advanced features.[5] It would strengthen the

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[4] Petersen, Phil. "Trunked Radio : Communication at Less Cost." Telephone Engineer & Management, Vol 93, Iss. 9, May 1989.

[5] Whitehead, Phil. "Pooling Channel Capacity." Communications, Vol. 25, Iss. 8, August 1988.

competitive edge of the services toward future market requirements.

Paging System

Although the local paging industry traces its roots back to the early 1970s, it really only took off in the early 1980s. Growth was especially strong in the past five years (Illustration 3.2). Today, the Hong Kong pager market boasts what is perhaps the world's highest penetration rates per capita.

Table 3.3 examines the number of pager users for each year. For the past few years, there are around 90,000 - 117,000 new pager users engaging in the paging network each year. In 1990, the service revenue potential is estimated to be around HK$1,000 millions[6], even though all pagers are sold at a loss to tie up usage with the service operators. The average growth rate for the next five years is expected to be around 20 percent. The revenue potential in providing paging services is estimated to be around HK$4,000 millions[7] in 1995 with ten per cent inflation rate per annum.

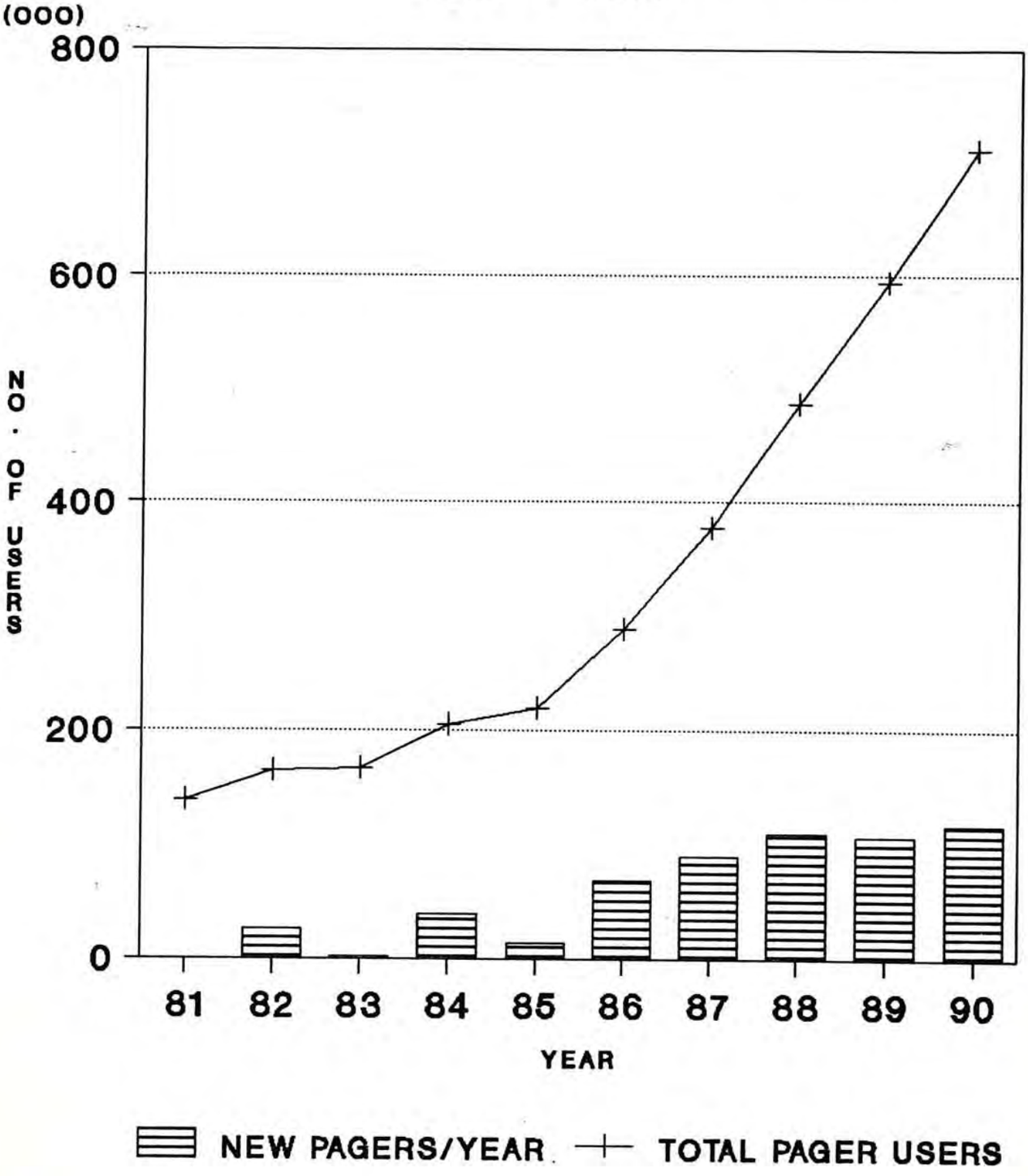
In the 1970s, the Post Office has opened 21 licences in running paging services. The assignment of the licence is listed in Appendix 4. In the market, Hutchison Paging is the major player in providing the services. Although Hutchison Paging has been in business for less than four years, over 50 percent of the pagers used in Hong Kong belong to the Hutchison network. The speed with which Hutchison took over the local pager market is accounted for by the firm's aggressive acquisition program. Hutchison is still looking for buying small paging companies to build its user bases.

The other two strong players in the paging market are Star Paging and ABC Paging. These two companies, together with Hutchison Paging, account for over 80 percent of the territory's 711,000

6, 7 Figures are obtained during interviews.

ILLUSTRATION 3.2

GROWTH OF RADIO PAGING RECEIVERS 1981 - 1990



Source : 1990 Annual Report, Telecommunications Branch, Hong Kong Post Office

TABLE 3.3

NO. OF PAGING RECEIVER REGISTERED PER EACH YEAR
(1981-1990)

Year	No. of Public Radio Paging Receiver	Growth %
1981	138,312	-
1982	164,101	18.6
1983	166,307	1.3
1984	205,010	23.3
1985	219,164	6.9
1986	287,356	31.1
1987	376,843	31.1
1988	486,640	29.1
1989	594,216	22.1
1990	711,420	19.7

Source : 1990 Annual Report, Telecommunications Branch, Hong Kong Post Office

pagers. Current market estimates point to sales of 8,000 to 10,000[8] pagers per month, with sales varying according to season. Illustration 3.3 shows the very uneven distribution of market share among the paging service providers.

A major problem facing today is the congestion in frequency spectrum and saturation of usage per channel which limit the growth of the market. The Post Office is aware of the crisis and allocated another 21 licenses for running new paging service in 1990. Six of these licenses are awarded to five existing paging services companies. The new licences serve to release the congestion and saturation problems, and invite more enterprises to join this service market. The new blood in the paging industry would bring modern management concept into the market, and competition could be even more serious than before.

For the new paging service operators, the annual revenue will be approximately more than HK$30 millions[9] per each new paging service channel in the sixth year. The accumulated revenue per each new paging service channel is around HK$60 millions[10] within 1991 - 1995 for the new paging service operator. It is another cash generating service industry which attracts many investors to bid for the licence. The market growth and revenue potential have made the paging services operation become a visible business. It generates a good cash flow and large return from HK$30-40 millions[11] investment.

Cellular Telephone System

Unlike most telecommunication services in Hong Kong, the hand-held cellular telephone market was pioneered by Hutchison

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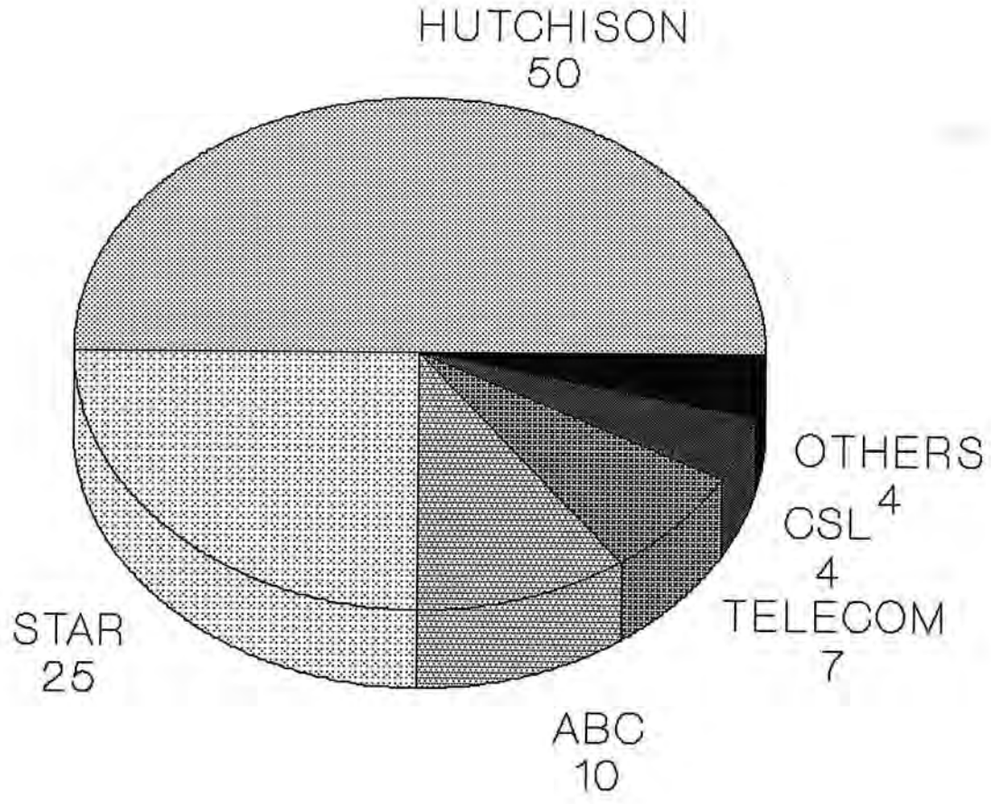
8 "Criteria for Granting a Public Non-Exclusive Telecommunications Services (PNETS) Licence for the Operation of Paging Services in Hong Kong", Hong Kong Post Office, November 1989.

9, 10, 11 Figures are obtained during interviews.

ILLUSTRATION 3.3

ESTIMATED 1990 MARKET SHARE AMONG THE PAGING SERVICE PROVIDERS



Source : Data extracted during interviews in early 1991 with paging market leaders and the Post Office

Telecommunications. Although Hong Kong Telecom CSL was the first to introduce a cellular telephone service, Hutchison was able to identify a need in the hand-held market, and capitalized on that opportunity. In 1988, Hutchison reached the capacity limits of the existing American celluar telephone system and was able to substantiate its growth by obtaining a new second licence for cellular telephone service.

The third competitor in the cellular network market is First Pacific which bought the Chinatel operation and obtained approval to operate the new network in September 1989. The Company is aggressively pushing its services, and is expecting to generate profit in 1991. It reflects the general consensus that running cellular telephone services would generate huge revenue and profit. It is a cash-rich industry with short pay-back period for such large investment project.

Up to the end of 1990, there were over 133,000 subscribers connected to the network as shown in Table 3.4. The overall capacity of the existing systems is estimated to be around 140,000 subscribers. The growth rate in the past 12 months was 50 percent, or an average of about 3,700 subscribers per month. If the current rate of growth is maintained, the grade of service of the existing systems may deteriorate beyond acceptable level by the middle of 1991. Aggressive marketing through intensive advertising, convenient distribution network for non-proprietary telephone set and buoyant economy have boosted up and maintained the growth rate.

The growth rate, market potential and the nature of the service business make all the enterprises conclude that to run a radio service network is a viable business.

Experience in other countries shows that a penetration of three to five percent of the population can be expected for Public Mobile

TABLE 3.4

NO. OF PUBLIC MOBILE RADIOTELEPHONE SUBSCRIBER UNITS
REGISTERED PER EACH YEAR
(1984-1990)

Year	No. of Mobile Unit	No. of Portable Unit	Total No.	Growth %
1984	1,000	-	1,000	-
1985	4,400	-	4,400	340.0
1986	6,000	-	10,000	127.3
1987	9,930	18,130	28,060	180.6
1988	16,010	35,270	51,280	82.8
1989	20,030	69,160	89,190	73.9
1990	22,796	111,116	133,912	50.1

Source : 1990 Annual Report, Telecommunications Branch,
Hong Kong Post Office

Telephone Services.[12] This would mean a subscriber population of 170,000 to 280,000 in Hong Kong in the 1990's. In 1990, the annual subscription market revenue[13] would be around HK$950 millions consisting of 50 millions non-refundable connection fee[14],50 millions for deposition and HK$750 monthly subscription per each user in average. Up to the end of 1990, all the users have paid HK$120-150 millions connection fee and HK$120-150 millions deposit. If the above revenues are equally shared by three network operators for four systems, each system could earn HK$238 millions for subscription fee up to 1990. Although running a cellular telephone system requires large investment of around HK$300-400 millions in 1990, the large cash return has shortened the pay-back period to 18 months. The business risk is small and the return is incredibly good.

In addition to the three operators which provide service networks as well as equipment, a growing number of independent vendors are also selling cellular handsets in Hong Kong. Although Hutchison Telephone and Hong Kong Telecom CSL will maintain a definite advantage in selling cellular phone units, they both expect to see declines in their share as First Pacific is aggressively pushing the services and improving the service network.

New technologies emerge to resolve the capacity problem in a limited frequency resource. They target to increase the capacity for two to three times.[15, 16] The Post Office intends to move into the

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12, "Consultative Paper in Licensing of Digital Public Mobile Radiotelephone Services in Hong Kong", Hong Kong Post Office, November 1990.

13, 14 The figures on revenue, subscription and connection fees are obtained during interviews.

15 Losee, Michael. "The Coming Age of Digital." Celluar Business, Vol. 5, Iss. 7, July 1988.

16 Stupa, John T. "Visions 1990." Cellular Business, Supplement, December 1989.

new technology, and a Consultative Paper on Licensing of Digital Public Mobile Radio-telephone Services in Hong Kong has been launched in November 1990.

To meet the demand forecasted in the last paragraph, it is necessary to introduce services based on new technologies.[17] Three new technologies have the potential to meet the demand in the 1990's - the 'Telepoint' services based on Cordless Telephone Second Generation (CT2) technology, the next generation of Public Mobile Telephone System employing digital techniques, and the Personal Communications Network (PCN). The Government has announced to invite the licence application for Telepoint Service and is likely to invite a fourth operator to run the fifth digital public mobile telephone service.

Mobile Data System

Hutchison Communication has also taken its mobile communications network experience one step further by setting up an innovative radio frequency packet switched data network which went into service in 1988. Hutchison's mobile data system is one of the first public network of its kind anywhere.

Hutchison Mobile Data is also offering a service allowing PCs anywhere in the territory to use the network, and to connect to systems through the Telco network. The company is providing the network as well as the equipment. The equipment cost and sophistication of service prohibit the company from any dealer sales. Although the mobile data system is not very popular at the present moment, it could have good potential to grow through engineering

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[17] Cox, Donald C. "Personal Communications - A Viewpoint. " IEEE Communication Magazine, November 1990.

add-on value and economy of scale to lower the equipment cost.

Satellite System

There was a major change in the satellite market in early 1988 when rivals Hong Kong Telecom and Hutchison Telecoms announced a joint venture with China International Trust and Investment Corp (CITIC) to purchase and launch a satellite designed to handle domestic telecoms traffic in several Asian countries. One area of enormous potential in this market is the use of satellite dishes to receive television and radio broadcasts from around the world. However, this has been an area under heavy regulation and individuals are only allowed to use such dishes for receiving TV broadcasts on a private bases.

The Government has awarded a licence to Hutchison Telecoms to run the satellite television in December 1990. The legislation allowing for shared use of satellite dish for residential buildings and hotels has also been passed. The market is changing rapidly because of the legislation, and the demand is expected to be tremendous.

Telepoint System and Future Development

Mobile radio services are experiencing the healthy pressures of both technology push and market pull. There are lots of developments going on in Europe - Digital Cellular Telephone System (GSM) and Digital European Cordless Telephone (DECT).[18] In cordless telephone technology, UK is the first country in Europe to introduce the second generation digital technology coupled with new system concept called

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[18] Gardinear, John G. "Research in the LINK Personal Communication Programe". Telecommunications (International Edition), Vol. 23, Iss. 12, December 1989.

Telepoint.[19] It is also evident that mobile radio products are in the process of changing from professional electronics to consumer electronic items. Cordless telephone products are leading the way.[20]

The new Telepoint concept starts with a radio base station having a service range of only 100m and builds up the territory-wide coverage through expanding the number of installed radio base stations or telepoints. The prinicple is graphically explained per Illustration 3.4. Telepoint has an additional advantage of building upon very low power cordless telephone products for both the domestic and business sectors.

The system trend on radio base service areas is explained per illustration 3.5. One of the beneficial outcomes of having small service area is to make feasible very small light pocket radiotelephones capable of long period of use. This implies that the cellular radio operators will be shifting much of their focus away from car phones as such towards pocket radiotelephones in order to sustain their growth through to the year 2000 and beyond.

Developments such as these open up possibilities for new competitive public mobile radio operators to invest in innovative Personal Communication Networks (PCN) targeted at the pocket radiotelephone.[21] One such possible network is shown in Illustration 3.6. The market opportunity for pocket radiotelephones has great potential. Personal communication is taken to encompass a wider range of communication capabilities than those represented by the current

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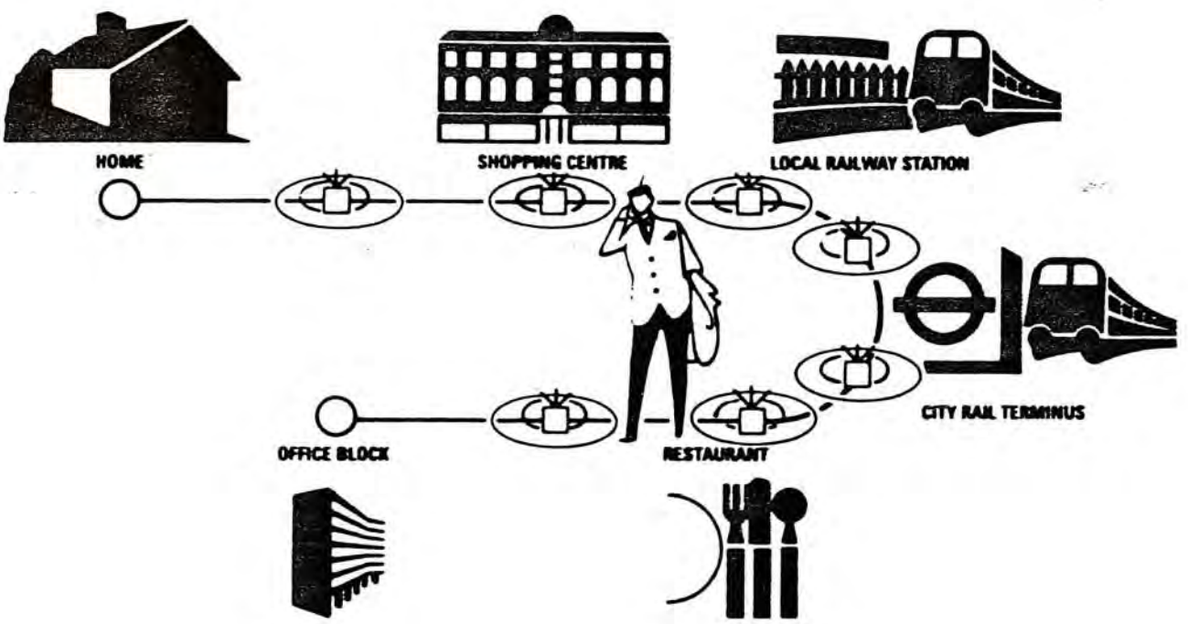
19 "Special Issue on Mobile Communications. "British Telecom Technical Journal, Vol. 8, No. 1, January 1990.

20 Bradsher, K. "A Phone in Your Pocket? Tryout Set for New Service." New York Time, May 10, 1990.

21 Cox, Donald C. "Portable Digital Radio Communication - An Approach to Tetherless Access." IEEE Communications Magazine, July 1989.

ILLUSTRATION 3.4

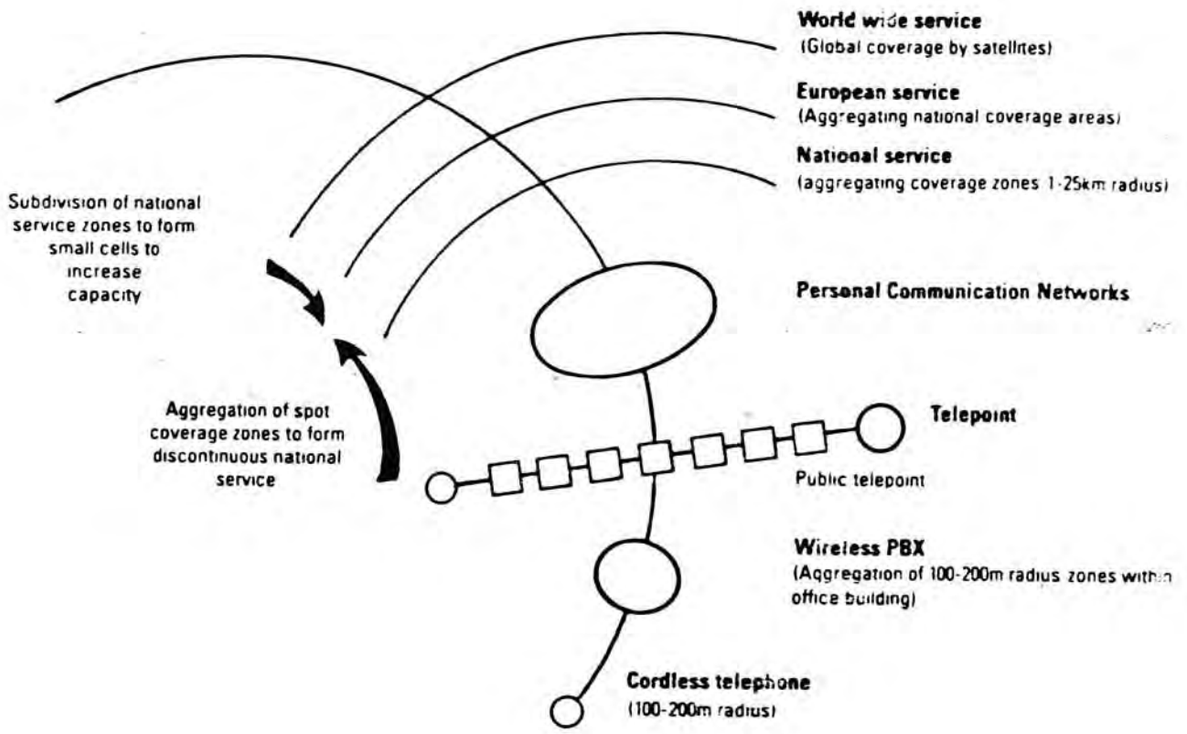
TELEPOINT PRINCIPLE



Source : "Personal Communications in the 1990s." A discussion document from the Department of Trade and Industry, U.K., January 1989.

ILLUSTRATION 3.5

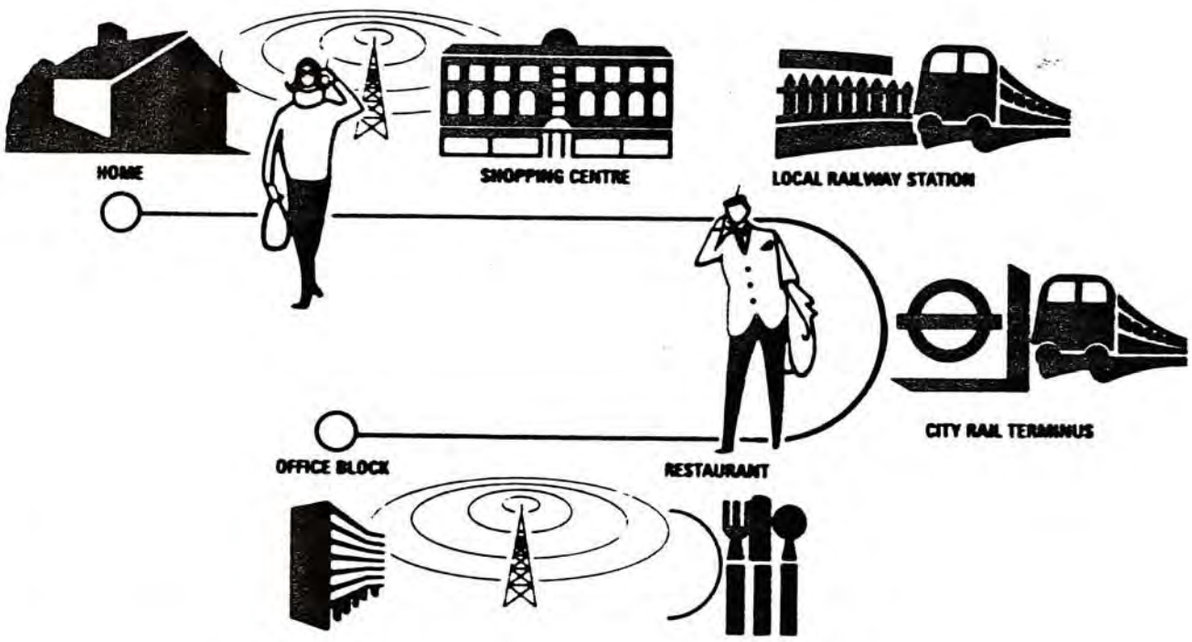
SYSTEM TREND OF RADIO SERVICE



Source : "Personal Communications in the 1990s." A discussion document from the Department of Trade and Industry, U. K., January 1989.

ILLUSTRATION 3.6

FUTURE PERSONAL COMMUNICATION NETWORK CONCEPT



Source : "Personal Communications in the 1990s. "A discussion document from the Department of Trade and Industry, U.K., January 1989.

analog cellular mobile radio technology, or even by the second generation digital cellular mobile radio technology.

Currently there is another development of cordless telephone in Continental Europe called Digital European Cordless Telephone (DECT).[22] It becomes a matter of international negotiation to achieve synergy between DECT and Personal Communication Networks. The product will be available for commercial application around 1993.

Summary

(1) A very comprehensive background information on the overall radio communication industry in Hong Kong is reviewed in this Chapter. The industry is consisted of varous segments, namely line communication, private mobile radio, trunked radio, paging, cellular telephone, mobile data, satellite and the new emerging Telepoint. The development and characteristics of each segment, its potential and limitation are generally covered.

(2) The further technologies growth are also reviewed - the Digital European Cordless Telephone (DECT), the Digital Cellular Telephone System (GSM/US Digital), and the Personal Communication Network (PCN). These new technologies will have a push and pull effect to the Telepoint Service.

(3) The chapter leads to a better appreciation of the fast developing radio communcation industry, and its acceptance by the Hong Kong public. It serves as a backdrop to open up the analysis in the following chapters as why Telepoint System come into Hong Kong at this time, how to project its profitability, and what should be done in order to survive and prosper.

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[22] Gardinear, John G. "Research in the LINK Communication Programme." Telecommunications (International Edition), Vol. 23, Iss. 12, December 1989.

CHAPTER IV

TELEPOINT - A NEW DEVELOPMENT

Product Profile

CT1

First generation of cordless telephone technology, known as CT1 has been a fast growing area in radio communications. However, CT1 falls beyond satisfaction in many aspects. Based on analog signal transmission, it cannot offer satisfactory audio quality and security. Interference easily occurs if other cordless telephones are being used in the vicinity. In terms of mobility, CT1 can only allow limited portability within a designated area, e.g. home or office.

In spite of these early technical limitations, CT1 is enjoying considerable popularity, roughly 70,000[1] sets are now in local use since its official approval of use in Hong Kong in March of 1989 with the numbers still swelling.[2] More than 30 million[3] cordless phones are already in use worldwide.

With the high population density in Hong Kong and people always on the move, there is an emerging need for a more convenient and better quality portable mobile service.

Most businessmen have agreed that until today, the use of portable phones for mobile communications has been pretty well limited to that segment of the business and personal market that

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[1, 3] Figures are provided by the Hong Kong Post Office.

[2] "Guidance Notes for the Submission of Proposals for the Operation of Telepoint Services in Hong Kong", Hong Kong Post Office, June 1990.

could afford the relatively high costs of cellular service. CT2, an improvement in terms of transmission quality, security and applications will be able to fill the gap for a mass mobile communications tool, hence is a very timely telecommunications product for present Hong Kong.

CT2

CT2, cordless telephone in its second generation, is an advance step in offering better personal communications. The technology is developed in the UK, intended to be a replacement for the analog CT1 telephones.[4] Operated on a high quality multi-channel digital transmission technology, it applies the same principle as CT1 but with higher quality speech transmission, convenience, flexibility and security.

Telepoint, as the public service becomes known, is a one-way service with the capability to make outgoing calls within 50-100 meters of a prominently marked public base stations.[5,6] It compensates the shortcoming of pager which is used for receiving call only. Work is done by manufacturers to turn Telepoint into quasi two-way service by building a pager into the handset. Although much is continuing in this area, the major emphasis now seems to combine the use of a pager from an established paging company with the offer of a handset.

The public base stations - Telepoint, are located indoors and

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4 "Special Issue on Mobile Communications", British Telecom Technical Journal, Vol. 8, No. 1 January 1990.

5 Bradsher, K. "A Phone in Your Pocket? Tryout Set for New Service." New York Time, May 10, 1990.

6 Cox, Donald C. "Personal Communications - A Viewpoint. "IEEE Communications Magazine, November 1990.

outdoors at key public and commercial areas such as transportation terminals, shopping centres, ports of entry, busy streets etc., they connect the calls to the conventional Public Switched Telephone Network, and route them through to local and overseas numbers with ease and speed, the principle of Telepoint Service is shown in Appendix 5.

CT2 handsets are light-weight and compact, relatively low-cost both in terms of purchase and usage. At home, the handset can be used as any cordless telephone to make and receive calls simply by installing a domestic home base unit which plugs into an existing telephone line.

In office, CT2 handsets can be connected to the PABX system allowing highly portable usage at any location in the office premise.

Having seen the problem of using non-standardized communication (air interface)[7] between the handset and the base station in the UK, which prohibits the growth of the service. Hong Kong intends to adopt the Common Air Interface to enable all the handsets to be capable of connecting to any network. Moreover, non-standardization in air interface has proven disastrous as competing systems would have been incompatible and inter system roaming could not have been achieved. In addition, the proprietary nature of the handsets would have prevented manufacturers from producing handsets and base stations at a reasonable price using the economy of scale production that had so successfully brought down the end user price of cellular handsets.

Competing Technologies[8]

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[7] "Special Issue on Mobile Communications" British Telecom Technical Journal, Vol. 8, No. 1 January 1990.

[8] "Cordless Rivalry Intensifies," Telecommunication Section, Asian Wall Street Journal, page 11, October 3, 1990.

There are currently four new technologies - Telepoint, the Digital European Cordless Telecommunications (DECT) system, the digital cellular system known as Groupe Spciale Mobile (GSM) after the European Committee has sponsored its standardisation, and Personal Communication Network (PCN).

All of these are to a degree competitive, although initially it is likely that Telepoint will have an edge over others due to its earlier launch and commercial usage experiences.

DECT is intended to be a more fully featureed offering than CT2 and is expected to be strong in the cordless PABX area of application in the offices that generate the bulk of telephone traffic. It has received very strong support in Europe and as said by Bjorn Svedberg, LM Ericsson's chairman : "We believe that the coming DECT standard will best combine the qualities that will be needed for the work place."[9] Ericsson has planned to unveil a pre-DECT system - likely name as CT3 - and targets at late 1991 or 1992.

The British Government hoped that the CT2 technology would be adopted across Europe and thereby give British manufacturers an "edge" over their rivals. This has occurred to some extent but not as fully as they would have wished. The major reason for this is the perception that British are trying to "railroad" their European partners.

By mid-1990, Britain, Germany, France, Spain, Portugal, Finland, Belgium and the Netherlands had signed a memorandum of understanding to adopt a common standard version of CT2, and some other countries had begun, or are planning trials of the technology. CT3 itself is

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[9] "Cordless Rivalry Intensifies," Telecommunication Section, Asian Wall Street Journal, page 11, October 3, 1990.

scheduled for trials in Australia, Canada, Denmark and Sweden, and may soon be visible in Florida.

In the Far East, there has been acceptance of the new CT2 standard. Thailand, Hong Kong, Australia and New Zealand are well advanced in planning for Telepoint networks. America has not adopted CT2 or Telepoint and seems to be looking at two home grown competing technologies, both believed to have come from Bell Labs. Both of these technologies are addressing the problems of cordless telephony in the modern office and, as such, do not seem to be addressing the domestic or public service market.

Nature of Service Business

In order to ensure Telepoint Service is a viable business with healthy competition, the Government is going to issue four licences to run the Services. The Post Office would use the identical frequencies as in UK and that only Common Air Interface products would be allowed.

The Government has expressed that consortium or joint venture approach is preferrable as it could bring in a good mix of experience and skill plus a sound financial basis. The Government also stresses the provision for quasi two-way services. The clause of awarding the paging service channel with the Telepoint Services license is one of the condition in license application.

For the users to access the Telepoint Service is by no means difficult. To make a call in the public area, the CT2 user simply needs to locate a public base station - the Telepoint. Within about 100 metres of the telepoint, the user presses a simple key sequence for access to the system network. The handset will instantly establish its connection with the Telepoint via a radio link. Photos

of the use of different prototype handsets with the Telepoint base stations are shown in Appendices 6, 7, 8 and 9.

The Telepoint will validate the identity of the user and may request, with a voice announcement, the user to enter his/her identification number (PIN).[10] When the status of the user has been verified, the base station will extend dial-tone to the user who can make calls in his normal manner. All this occurs within only two to three seconds.

Once the calls has finished, the telepoint base station will then record the time, date and duration of the call being made and stores the information for eventual relay to the service centre for customer billing.

The following summarises the advantages and benefits of the CT2/Telepoint Service to the public:

- Telepoint gives the users freedom to take the personal phone wherever they go. The light-weight handset offers the best advantage for moving around.
- A low cost way of staying in touch
- Allowing "immediate" return calls when paged for
- A personal and portable means of communications requiring neither cash or card
- It offers a higher degree of privacy and hygiene
- Battery talking time of telepoint handset is typically six times longer than that of cellular phones

Positioning[11]

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[10] Cox, Donald C. "Portable Digital Radio Communication - An Approach to Tetherless Access." IEEE Communications Magazine, July 1989.

[11] Park, C.W. & Zaltman, G. Marketing Management. The Dryden Press, 1987.

With the above inherent product uniqueness of CT2/Telepoint Service, its product positioning is very clear to fill up the gap between the paging and cellular telephone.

CT2 would target at a broad section of the population, for example, professionals, workers and salespersons who move around and require more immediate contact with one another in an easily affordable way. Telepoint will especially complement the needs of radio paging users by providing them with outgoing communications.

One senior industry expert commented that Telepoint technology will, quite simply, put present business and general users with a new, inexpensive and portable means of accessing the public phone network. Telepoint systems will therefore complement rather than replace or compete with mobile cellular networks. The Telepoint Services will support the natural growth of the mobile communication market by meeting the needs of mobile users who do not require the full facilities of cellular phone.

The four service operators look at the current 711,000 pager users as their immediate and accessible market. The industry takes a bullish view that the CT2/Telepoint Service introduction would further boom up the the already fast expanding paging market. In a nutshell, they believe both the sales and service income revenue will be greatly increased. In the following chapter, the profitability of the industry will be analysed to determine its attractiveness. The inherent problems steming from its nature as an emerging industry will also be studied.

Summary

(1) Cordless communication will be an important part of the personal and business lifes in the 1990s. The European Community has calculated that by the end of the decade, 50% of all telephones

bought in Europe could be mobile telephone.[12] Hong Kong is certainly viewed as a forerunner among other countries, and it's wholly private telecommunications sector is a world leader in several areas, and plans to stay in the lead.[13]

(2) The chapter reviews the new comer in the scene of cordless communication in Hong Kong - Telepoint Service or shortly as CT2. It is part of the overall radio communication industry as outlined in Chapter III. In this chapter, the Telepoint Service is analysed in more details, namely its product profile, relationship with competing technologies, its nature as a service business and possible positioning in the industry. This leads to a more indepth analysis in the next chapter on its profitability study.

(3) The advantages and benefits of using Telepoint Service/CT2 are also summarised - freedom to use the phone, light weight, long battery life, low cost and portability. CT2 is positioned between pager and cellular phone. Telepoint system will complement rather than replace or compete direct with mobile cellular networks.

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[12] "Cordless Rivalry Intensifies", Telecommunication Section, Asian Wall Street Journal, page 11, October 3, 1991.

[13] Selwyn, Michael. "Hong Kong Shows The World The Way." Asian Business, November 1989.

CHAPTER V

INDUSTRY PROFITABILITY ANALYSIS

Base on the product uniqueness of CT2 and the positioning as analyzed in Chapter IV, this chapter would continue to evaluate the Telepoint Service industry from the financial point of view. The first section is dedicated to quantifying the market size, and forecasting the industry revenue.

The second section is to look at the business profitability over a 10-year period of a service operator. Three scenarios are used to determine the profitability in each case, and a comparison will be drawn. The scenarios are assumed three, four or five operators are licensed to run the Telepoing Service industry in Hong Kong.

The three scenarios are chosen for comparison because there are hot debates as to how many service operators the industry can support. On one hand, the current three mobile telephone serivce operators - Hutchison Telecommunication, HK Telecom CSL and Pacific Link all show interest to participate. The Government, on the other hand, would like to have more player, especially open to foreign investment to participate in Hong Kong. The Report attempts to analyse the optimum member of service operators and the industry attractiveness. Financial tools of Profit and Loss Statement, and Cash Flow Statement would be employed.

The last part in this Chapter would further look into a practical situation where a dominating operator might have 50% of market share, with the other operators fighting for the remaining half of the market. The financial model suggests implications and the benchmark of customer size in order to survive.

Industry Size

Because of the design nature of the cordless telephone second generation and further enhancement of providing quasi two-way service by building a pager into the handset, it is logical that the target customer will be the pager users. The congestion of the existing cellular telephone systems limits the growth of the cellular telephone market, and there are inherent deficiencies of pager with the capability of receiving calls only. The CT2 is aimed to complement the deficiencies of pager and smoothen the congestion of cellular telephone system. It could help in diverting the market demands in cellular telephone system before digital cellular mobile phone system is available.

From Table 3.3, the growth of new pager users for the past five years was between 100,000 to 117,000 annually, representing a CAGR[1] of 25.5% from 1986 to 1990. Most interviewees believed that the growth momentum would be slightly slower for the next few years, but still in a growing stage. The CAGR[2] is projected to be around 15% from 1990 to 1994 (21 new paging licences have been issued in 1990). The population of paging users will run up to 1.4 millions by year five.[3] Based on these figures and the target customer designed, the financial model in this chapter assumes initially 20% of new pager users will join the services. The learning curve would extend to the fourth year where 65% of new pager users would also demand the services. The forecast is acceptable as the total Telepoint Service users upto year four only account for less than 20% of the total population of the pager users base (Illustration 5.1). The more

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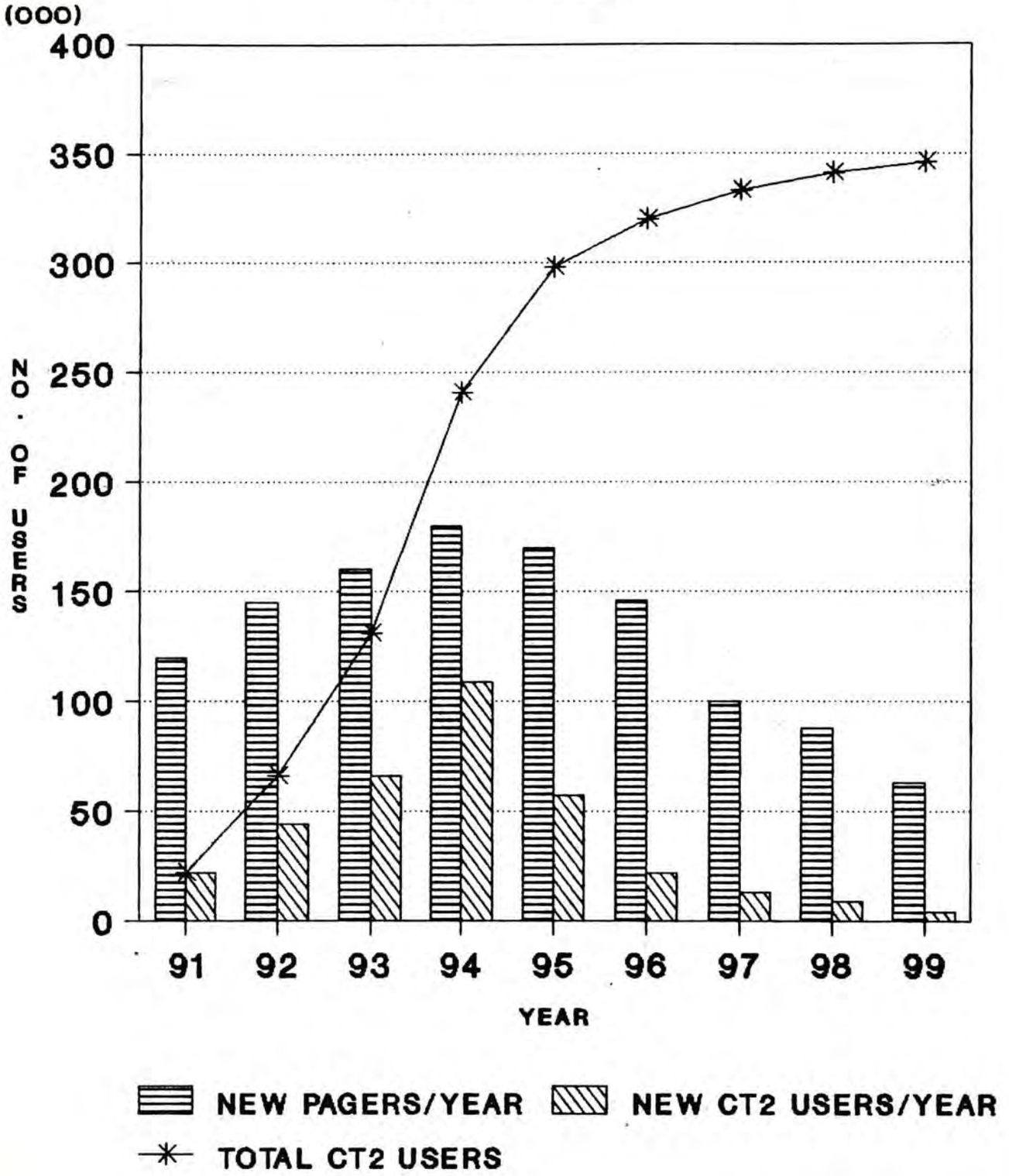
[1, 2] CAGR is the abbreviation of Compound Annual Growth Rate.

[3] Figures are collected and analysed after interviews with paging market leaders and the Post Office.

ILLUSTRATION 5.1

FORECASTED GROWTH RATE OF PAGING & CT2 USERS 1991 - 1999



conservative estimation is preferred to improve the probability of attaining the profitability.

The above figures come from the consensus in the paging service industry. Although all prospective Telepoint Service Licence holders express a more optimistic view on the subscription rate, it would be preferrable to take a more conservative assumption because of the above reason.

Table 5.1 shows the forecast distribution of new customers joining the Telepoint Service. For the use of this Report purpose, the total number of users over the ten year period will be 350,000. An even distribution of customers are assumed among the service operators under three, four or five licensed operators for the simplicity of illustration. A more realistic distribution and corresponding financial implications will be discussed in the last part of the chapter.

Table 5.2 depicts the forecast of the annual revenue of the Telepoint Service industry for the next ten years. The calculation indicates that the first year industry revenue is around HK$21 millions and it will increase at a fast rate up to HK$444 millions in year five. By year ten, the annual revenue of the industry is around HK$564 millions. Upto year ten, the cumulative revenue would be more than HK$3,731 millions.

Financial Highlights

The financial tools used in this section to measure the industry profitability are the Profit & Loss Statements and Cash Flow Statement. The key indexes are Cumulative Profit After Tax, and Closing Balance.[4] Profitability and cash management position could

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[4] Anthony, Robert N. & Reece, James S. Accounting : Text and Cases. Illinois : Richard D. Irwin, 1983.

TABLE 5.1

FORECAST DISTRIBUTION OF TELEPOINT SERVICE CUSTOMERS

CUSTOMERS OVER THE PLANNING PERIOD

YEARS >	1	2	3	4	5	6	7	8	9	10
All networks										
Customers joining per annum	21.9	43.8	65.6	109.4	56.9	21.9	13.1	8.8	4.4	4.4
Total customers at year end	21.9	65.6	131.3	240.6	297.5	319.4	332.5	341.3	345.6	350.0
Consortiums network										
Three Operators										
Customers joining per annum	7.3	14.6	21.9	36.5	19.0	7.3	4.4	2.9	1.5	1.5
Total customers at year end	7.3	21.9	43.8	80.2	99.2	106.5	110.8	113.8	115.2	116.7
Four Operators										
Customers joining per annum	5.5	10.9	16.4	27.3	14.2	5.5	3.3	2.2	1.1	1.1
Total customers at year end	5.5	16.4	32.8	60.2	74.4	79.8	83.1	85.3	86.4	87.5
Five Operators										
Customers joining per annum	4.4	8.8	13.1	21.9	11.4	4.4	2.6	1.8	0.9	0.9
Total customers at year end	4.4	13.1	26.3	48.1	59.5	63.9	66.5	68.3	69.1	70.0

* See explanatory notes overleaf.

NOTES OF TABLE 5.1

1) The pager customer base at Year 0 (i.e. 1990) was 711,420. The data is from the annual report of the Telecommunications Branch, Post Office.

2) The Post Office records show an annual increase between 100,000 to 117,000 new pager users from 1986 to 1990, representing a CAGR of 25.5%. The industry experts forecast a 15% CAGR between 1990 to 1994.

3) From Year 5 (1995) onwards, the paging market is reaching a late growth or early mature. Growth rate of new users will be dropping significantly.

4) The major impact of CT2 will be in the first five years. It is forecasted that in Year 1, 20% of new pager users will also use Telepoint Service simultaneously. With good feedbacks from early users, it is forecasted that from Year 2 to Year 4,the % of new Telepoint Services users will be 35%, 50% and 65% respectively of the annual new pager users.

5) From Year 5 onwards, the new Telepoint Service users will drop dramatically as it is the common consensus among industry experts that the window of opportunity is less than 5 years, contingent on the commercial introduction of other competing technologies.

6) The total no. of Telepoint Service users is split equally among the service operators under the three scenarios of three, four and five operators.

7) Some numbers may not add up due to rounding to the nearest thousand.

TABLE 5.2

FORECAST OF CUSTOMER AND INCOME OF TELEPOINT SERVICE INDUSTRY
(1991 - 2000)

Year	No. of New Customers Per Year	Total Customers	Connection Fee (1)	Service Income (2)	Annual Revenue (1)+(2)	Cummulative Revenue
1	21,900	21,900	3,300	17,700	21,000	21,000
2	43,800	65,600	6,600	70,800	77,400	98,400
3	65,600	131,300	9,900	159,600	169,500	267,900
4	109,400	240,600	16,500	301,200	317,700	585,600
5	56,900	297,500	8,400	435,900	444,300	1,029,900
6	21,900	319,400	3,300	499,800	503,100	1,533,000
7	13,100	332,500	2,100	528,000	530,100	2,063,100
8	8,800	341,300	1,200	545,700	546,900	2,610,300
9	4,400	345,600	600	556,500	557,100	3,167,400
10	4,400	350,000	600	543,400	564,000	3,731,400

Notes : - All connection fee, income and revenue are quoted in HK$000.
- The Service Income is HK$564 millions after year 10.
- All changes are calculated at 1991 rates for the ease of simplicity.
- Refer Illustration 5.8 for details of revenue calculation.

then be compared. The timescale under examination is ten-years, same as the license validity granted by the Government. To assess the possible profitability of a service operator, this chapter uses a financial model which looks at three scenarios. These are the positions whereby licences of three, four or five operators are granted to run the Telepoint Service in Hong Kong.

Capital injection has been kept constant under all three scenarios and has been assumed to be roughly equal to the capital expenditure required on the infrastructure during the first three years. HK$200 millions will be used as the capital investment for each network after consultation with industry experts.

All the assumptions and factors to run the Profit & Loss and Cash Flow statements are listed in details as per Illustration 5.8. The data and assumptions are based on discussion feedbacks during our interviews, and available market information which make logical sense. The sales revenue and cost line data are projected as real as possible to an actual service business. Thus the result should reflect the trend, and proxi to practical business results.

The financial model will first look at a hypothetical situation whereby Telepoint Service customers would be distributed evenly among the service operators. Financial highlights are drawn and compared. The optimum number of service operators in running the industry is suggested. However, a more realistic situation of customers distribution is being looked at in the second part, and some benchmark figures are also proposed.

Even Distribution of Telepoint Customer Base Among Service Operators

The customer base of total 350,000 users[5] over ten years would

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[5] See Table 5.1

be spread equally among the service operators in the financial model to calculate their respective annual sales revenue. It is further assumed that the operators will start at the same time and gain equal share of each year's new customers. There will inevitably be some loss of customers but it is assumed that this will be small in comparison to the number of new customers joining the Telepoint Service.

Table 5.3 shows the financial summary of the business with different number of competitors. There is no doubt that fewer the competition, better the profit. However, with the need to balance competition, and uphold the "open-door" principle to foreign investment, it is no surprise that the Government would select FOUR operators. Even in such case, the Return on Investment will be 144% for a 10-year investment. Annual revenue for each operator will be HK$111 millions by year five[6] and HK$141 million by year ten.[7] This financial performance should be deemed attractive by itself, not to mention the experience and preparation work that the service operators can gain for future technology development. The Profit & Loss and Cash Flow Statements for three, four and five operators are shown in details as per Illustrations 5.2, 5.3, 5.4, 5.5, 5.6 and 5.7.[8,9]

Possible Distribution of Telepoint Customer Base
Among Four Service Operators

The previous section of financial analysis is based on a

[6, 7] See Illustration 5.4 - Profit & Loss Statement of Four Operators

[8] Ross, Stephen A. & Westerfield, Randolph, W. Corporate Finance. Times Mirror/Mosby College Publishing, 1988.

[9] Pyle, W.W., White J. A. & Larson, K. D. Fundamental Accounting Principles. Richard D. Irwin, 1978.

TABLE 5.3

FINANCIAL SUMMARY OF A 10-YEAR PROJECTION
UNDER THREE SCENARIOS

Scenario	Cummulative Profit after tax at Year 10	Year to achieve positive cash balance
five operators	HK$151 million	Year 5
four operators	HK$288 million	Year 4
three operators	HK$515 million	Year 3 or 4

Source : Data extracted from Illustrations 5.2, 5.3, 5.4, 5.5, 5.6 and 5.7.

ILLUSTRATION 5.2

PROFORMA PROFIT & LOSS ACCOUNT-THREE OPERATORS

ITEM	NOTE	YEARS 1	2	3	4	5	6	7	8	9	10
REVENUE											
New Customers p.a.(000's)		7.3	14.6	21.9	36.5	19.0	7.3	4.4	2.9	1.5	1.5
Cumulative Customers (000's)		7.3	21.9	43.8	80.2	99.2	106.5	110.8	113.8	115.2	116.7
Connection Fees	1	1.1	2.2	3.3	5.5	2.8	1.1	0.7	0.4	0.2	0.2
Usage & Service Charges	2	5.9	23.6	53.2	100.4	145.3	166.6	176.0	181.9	185.5	187.8
Total		7.0	25.8	56.4	105.9	148.1	167.7	176.7	182.4	185.7	188.0
COSTS											
Marketing Costs	3	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9
Stock/Supply Costs	4	0.10	0.0	0.05	0.0	0.0	0.05	0.0	0.0	0.0	0.0
Advertising	5	1.8	1.5	1.5	1.2	1.5	1.3	1.4	1.4	1.4	1.5
Service	6	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
Overhead Costs	7	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25
Administration	8	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
Rent	9	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1
Disbursements To HK Telephone	10	0.6	2.4	5.3	10.0	14.5	16.7	17.6	18.2	18.5	18.8
Line Rental To HK Telephone	11	2.5	6.6	9.1	9.9	9.9	9.9	9.9	9.9	9.9	9.9
Disbursements To Site Owners	12	0.2	0.7	1.5	2.8	4.0	4.6	4.9	5.1	5.2	5.2
Base Station Rent To Site Owners	13	1.5	4.0	5.5	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Installation of Base Stations	14	3.0	2.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Depreciation	15	29.3	40.0	45.3	32.0	32.0	16.0	5.3	0.0	0.0	0.0
Total		47.8	66.1	78.2	70.8	76.9	63.5	54.0	49.5	49.9	50.3
Profit/(Loss) Before Tax		(41)	(40)	(22)	35	71	104	123	133	136	138
Taxation	16	0.0	0.0	0.0	5.8	11.8	17.2	20.2	21.9	22.4	22.7
Profit/(Loss) After Tax		(41)	(40)	(22)	29	60	87	102	111	113	115
Cumulative Profit/(Loss) After Tax		(41)	(81)	(103)	(74)	(14)	73	175	286	400	515

ILLUSTRATION 5.3

PROFORMA CASH FLOW STATEMENT-THREE OPERATORS

ITEM	NOTE	YEARS 1	2	3	4	5	6	7	8	9	10
Receipts											
Connection Fees	19	0.9	2.0	3.1	5.1	3.3	1.4	0.7	0.5	0.3	0.2
Usage & Service Charges	19	4.9	20.7	48.2	92.5	137.8	163.0	174.4	180.9	184.9	187.4
Capital	20	120	50	25	0	0	0	0	0	0	0
TOTAL RECEIPTS		125.8	72.7	76.3	97.6	141.1	164.4	175.2	181.4	185.1	187.6
Payments											
Salaries		5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8
Promotion		1.9	1.5	1.6	1.2	1.5	1.4	1.4	1.4	1.4	1.5
Disbursements		3.2	9.6	15.9	22.8	28.5	31.2	32.4	33.2	33.6	33.9
Rent		4.6	7.1	8.6	9.1	9.1	9.1	9.1	9.1	9.1	9.1
Installation of Base Stations		3.0	2.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
OPERATING PAYMENTS		18.5	26.1	32.9	38.8	44.9	47.5	48.7	49.5	49.9	50.3
Capital Expenditure	15	120.0	53.3	26.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Taxation	16	0.0	0.0	0.0	5.8	11.8	17.2	20.2	21.9	22.4	22.7
TOTAL PAYMENTS		138.5	79.4	59.5	44.6	56.6	64.7	68.9	71.4	72.3	73.0
SURPLUS/ (DEFICIT)		(13)	(6.7)	16.8	53.0	84.5	99.7	106.2	110.0	112.8	114.6
Opening Balance			(13)	(19)	(3)	50	135	235	341	451	564
CLOSING BALANCE		(13)	(19)	(3)	50	135	235	341	451	564	678

ILLUSTRATION 5.4

PROFORMA PROFIT & LOSS ACCOUNT-FOUR OPERATORS

ITEM	NOTE	YEARS 1	2	3	4	5	6	7	8	9	10
REVENUE											
New Customers p.a.(000's)		5.5	10.9	16.4	27.3	14.2	5.5	3.3	2.2	1.1	1.1
Cumulative Customers (000's)		5.5	16.4	32.8	60.2	74.4	79.8	83.1	85.3	86.4	87.5
Connection Fees	1	0.8	1.6	2.5	4.1	2.1	0.8	0.5	0.3	0.2	0.2
Usage & Service Charges	2	4.4	17.7	39.9	75.3	109.0	124.9	132.0	136.4	139.1	140.9
Total		5.3	19.4	42.3	79.4	111.1	125.7	132.5	136.8	139.3	141.0
COSTS											
Marketing Costs	3	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9
Stock/Supply Costs	4	0.10	0.0	0.05	0.0	0.0	0.05	0.0	0.0	0.0	0.0
Advertising	5	1.3	1.2	1.1	0.9	1.1	1.0	1.0	1.1	1.1	1.1
Service	6	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
Overhead Costs	7	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25
Administration	8	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
Rent	9	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1
Disbursements To HK Telephone	10	0.4	1.8	4.0	7.5	10.9	12.5	13.2	13.6	13.9	14.1
Line Rental To HK Telephone	11	2.5	6.6	9.1	9.9	9.9	9.9	9.9	9.9	9.9	9.9
Disbursements To Site Owners	12	0.1	0.5	1.1	2.1	3.0	3.5	3.7	3.8	3.9	3.9
Base Station Rent To Site Owners	13	1.5	4.0	5.5	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Installation of Base Stations	14	3.0	2.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Depreciation	15	29.3	40.0	45.3	32.0	32.0	16.0	5.3	0.0	0.0	0.0
Total		47.2	64.9	76.1	67.3	71.8	57.8	48.0	43.3	43.7	43.9
Profit/(Loss) Before Tax		(42)	(46)	(34)	12	39	68	84	93	96	97
Taxation	16	0.0	0.0	0.0	2.0	6.5	11.2	13.9	15.4	15.8	16.0
Profit/(Loss) After Tax		(42)	(46)	(34)	10	33	57	71	78	80	81
Cumulative Profit/(Loss) After Tax		(42)	(87)	(121)	(111)	(78)	(22)	49	127	207	288

ILLUSTRATION 5.5

PROFORMA CASH FLOW STATEMENT-FOUR OPERATORS

ITEM	NOTE	YEARS 1	2	3	4	5	6	7	8	9	10
Receipts											
Connection Fees	19	0.7	1.5	2.3	3.8	2.5	1.0	0.5	0.4	0.2	0.2
Usage & Service Charges	19	3.7	15.5	36.2	69.4	103.4	122.3	130.8	135.7	138.6	140.6
Capital	20	120	50	25	0	0	0	0	0	0	0
TOTAL RECEIPTS		124.4	67.0	63.5	73.2	105.8	123.3	131.4	136.1	138.8	140.7
Payments											
Salaries		5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8
Promotion		1.4	1.2	1.2	0.9	1.1	1.0	1.0	1.1	1.1	1.1
Disbursements		3.1	8.9	14.2	19.6	23.9	25.9	26.8	27.4	27.7	27.9
Rent		4.6	7.1	8.6	9.1	9.1	9.1	9.1	9.1	9.1	9.1
Installation of Base Stations		3.0	2.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
OPERATING PAYMENTS		17.8	24.9	30.8	35.3	39.8	41.8	42.7	43.3	43.7	43.9
Capital Expenditure	15	120.0	53.3	26.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Taxation	16	0.0	0.0	0.0	2.0	6.5	11.2	13.9	15.4	15.8	16.0
TOTAL PAYMENTS		137.8	78.3	57.4	37.3	46.3	53.0	56.6	58.7	59.4	59.9
SURPLUS/ (DEFICIT)		(13)	(11.2)	6.1	35.9	59.5	70.3	74.7	77.3	79.4	80.8
Opening Balance			(13)	(25)	(19)	17	77	147	222	299	378
CLOSING BALANCE		(13)	(25)	(19)	17	77	147	222	299	378	459

ILLUSTRATION 5.6

PROFORMA PROFIT & LOSS ACCOUNT-FIVE OPERATORS

ITEM	NOTE:	YEARS 1	2	3	4	5	6	7	8	9	10
REVENUE											
New Customers p.a.(000's)		4.4	8.8	13.1	21.9	11.4	4.4	2.6	1.8	0.9	0.9
Cumulative Customers (000's)		4.4	13.1	26.3	48.1	59.5	63.9	66.5	68.3	69.1	70.0
Connection Fees:	1	0.7	1.3	2.0	3.3	1.7	0.7	0.4	0.3	0.1	0.1
Usage & Service: Charges	2	3.5	14.2	31.9	60.2	87.2	99.9	105.6	109.1	111.3	112.7
Total		4.2	15.5	33.9	63.5	88.9	100.6	106.0	109.4	111.4	112.8
COSTS											
Marketing Costs:	3	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9
Stock/Supply sts	4	0.10	0.0	0.05	0.0	0.0	0.05	0.0	0.0	0.0	0.0
Advertising	5	1.1	0.9	0.9	0.7	0.9	0.8	0.8	0.9	0.9	0.9
Service	6	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
Overhead Costs	7	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25
Administration	8	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
Rent	9	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1
Disbursements To HK Telephone:	10	0.4	1.4	3.2	6.0	8.7	10.0	10.6	10.9	11.1	11.3
Line Rental To HK Telephone	11	2.5	6.6	9.1	9.9	9.9	9.9	9.9	9.9	9.9	9.9
Disbursements To Site Owners	12	0.1	0.4	0.9	1.7	2.4	2.8	2.9	3.0	3.1	3.1
Base Station Rent To Site Owners	13	1.5	4.0	5.5	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Installation of: Base Stations	14	3.0	2.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Depreciation	15	29.3	40.0	45.3	32.0	32.0	16.0	5.3	0.0	0.0	0.0
Total		46.8	64.2	74.9	65.2	68.8	54.4	44.5	39.6	39.9	40.1
Profit/(Loss) Before Tax		(43)	(49)	(41)	(2)	20	46	62	70	72	73
Taxation	16	0.0	0.0	0.0	0.0	3.3	7.6	10.2	11.5	11.8	12.0
Profit/(Loss) After Tax		(43)	(49)	(41)	(2)	17	39	51	58	60	61
Cumulative Profit/(Loss) After Tax		(43)	(91)	(132)	(134)	(117)	(79)	(27)	31	91	151

ILLUSTRATION 5.7

PROFORMA CASH FLOW STATEMENT-FIVE OPERATORS

ITEM	NOTE	YEARS 1	2	3	4	5	6	7	8	9	10
Receipts											
Connection Fees	19	0.5	1.2	1.9	3.1	2.0	0.8	0.4	0.3	0.2	0.1
Usage & Service Charges	19	3.0	12.4	28.9	55.5	82.7	97.8	104.7	108.6	110.9	112.5
Capital	20	120	50	20	0	0	0	0	0	0	0
TOTAL RECEIPTS		123.5	63.6	50.8	58.6	84.7	98.6	105.1	108.8	111.1	112.6
Payments											
Salaries		5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8
Promotion		1.2	0.9	1.0	0.7	0.9	0.8	0.8	0.9	0.9	0.9
Disbursements		2.9	8.4	13.2	17.6	21.1	22.7	23.4	23.9	24.2	24.3
Rent		4.6	7.1	8.6	9.1	9.1	9.1	9.1	9.1	9.1	9.1
Installation of Base Stations		3.0	2.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
OPERATING PAYMENTS		17.5	24.2	29.5	33.2	36.8	38.4	39.1	39.6	39.9	40.1
Capital Expenditure	15	120.0	53.3	26.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Taxation	16	0.0	0.0	0.0	0.0	3.3	7.6	10.2	11.5	11.8	12.0
TOTAL PAYMENTS		137.5	77.6	56.2	33.2	40.1	46.0	49.3	51.1	51.7	52.1
SURPLUS/ (DEFICIT)		(14)	(14.0)	(5.4)	25.4	44.5	52.6	55.8	57.7	59.4	60.5
Opening Balance			(14)	(28)	(33)	(8)	37	89	145	203	262
CLOSING BALANCE		(14)	(28)	(33)	(8)	37	89	145	203	262	323

ILLUSTRATION 5.8

NOTES AND ASSUMPTIONS

NOTE

1 Connection charges at made when the handset is registered on the network. The connection charge is $100.

2 The service charge is $75 per month and the usage charge is expected to average $75 per month. Take up of service is expected to be even throughout the year. The billing company will collect this revenue and take all the bad debts. The charge for this will be 10% of Usage and Service billings.

3 These are all staff costs and are assumed to be constant throughout at one Marketing Manager @ $500,000 p.a., 3 Marketing Executives @ $200,000 p.a. each and 8 clerical & junior staff @ $100,000 p.a. each.

4 Demonstration equipment of two base stations and 10 handsets are expected to be purchased in Year 1 to a value of $100,000. New models of handsets are expected to be purchased in Years 3 & 5 to a value of $50,000 for each year.

5 Advertising is expected to be heavy in the early years when taken as a percentage of revenue. Figures assumed in this business plan are:-

Year 1	25%
Year 2	6%
Year 3	3.5%
Years 4-5	1.5%
Years 6-10	1.25%

6 These are all staff costs and are assumed to be constant throughout at one Engineering Manager @ $500,000 p.a., a Network Manager @ $200,000 p.a., an Administration Centre Manager @ $200,000 and 8 junior technical and clerical staff @ $100,000 p.a. each.

7 this is the staff cost for the Chief Executive and secretary totalling $1,250,000 p.a.

8 This is all staff costs assumed to be constant throughout at one Financial Controller at $500,000 p.a. and four junior staff at $100,000 p.a. each.

9 The consortium is expected to need an administration centre that will house the computers, an engineering store and a report centre. This is assumed to be 5,000 sq.ft. at a rental of $20 per sq.ft. per month in an industrial area. Similarly, the Chief Executive, Marketing and Admin. staff are assumed to require 4,000 sq.ft. in a business area such as Wanchai North at a rental of $40 per sq.ft. per month.

10 The Usage charge to customers will be $0.5 per minute or part thereof. Hong Kong Telephone will be entitled to the standard access charge of $0.09 per minute. Although this is recorded on a cumulative basis, it is assumed here that this will be charged on completed calls as per minute or part thereof.

11 Hong Kong Telephone line rental charge for PNETS applications is $69 per exchange line per month.

12 This disbursement gives the owner of the site where the base station is located a share of the call revenue originating on that base station. This is calculated at 5% of call revenue.

13 This disbursement gives the owner of the site where the base station is located rental for the space occupied. This is assumed to be $2,000 p.a.

14 The cost of installing a Base Station is assumed to be $2,000.

15 The network is expected to cost $200 Million. The computers are expected to be 20% of this with the base stations taking up the other 80%. Base stations are expected to be installed at the rate of 1,500 in year 1, 1,000 in year 2 and 500 in year 3. Computers will all be installed in year 1. Depreciation is assumed to be straight line. Computers are assumed to have a 3 year life, Base Stations are assumed to have a 5 year life.

16 Standard Corporate Tax Rate for Hong Kong is 16.5%.

17 Inflation is not built into either the Revenue or the Costs.

18 No financing costs are built into the Financial Data.

19 The debtor days are assumed to be 60.

20 Capital injected is assumed to be roughly equal to the Capital Expenditure required during the first 3 years.

hypothetical approach of evenly distribution of customer base among the service operators. The results carry meaning for study as all the expenses and costs could be projected reasonably, and the financial analysis provide some ballpark figures good for comparison discussion.

In real situation, the current pager users population is very unevenly distributed among the few big service operators. This has been reported in detail under Chapter III. As the primary target of the new Telepoint Service users would come from the paging customer base, it could be realistically assumed that the existing service operators like Hutchison Paging, Hong Kong Telecom CSL and Star Pager consortium would definitely focus on their respective paging customer base and convert them to Telepoint users. The other two service operators, First Pacific has some number of pager users from its member of the consortium, while Chevalier (OA) does not have any current paging users. They would fight hard to convert customers from the two former operators, and expand from the other small paging companies. Thus, it is highly likely that the Telepoint users distribution might follow similar pattern of the current paging market - unevenly distributed and highly skewed.

There is a common consensus among industry experts that Hutchison Paging will still maintain its leadership position in both the paging and Telepoint markets. From all data and information collected, Hutchison would pursuit aggressively in this industry, and therefore its dominating position of at least 50% market share, would affect the profitability of the other service operators. From a financial point of view, Hutchison would have a very short pay-back period of less than three years on the investment made in Telepoint.

A more interesting point found during the financial analysis is

how the other three service operators would survive in the midst of a highly possible disequilibrium created by Hutchison. From the financial model presented in the last section, a 20% share of the market is a marginally attractive investment (this is same as five operators running with equal split of customers). Bearing that Hutchison might occupy 50% of the market, the other three contenders have to struggle for the other half of the market. A summary of profitability attractiveness and customer base size based on possible market share of each operator is given in Table 5.4.

The benchmark to survive should be a 15% market share from the financial model used in the previous section. This is equal to a critical mass of about 52,000 users, and the operator would be running a break-even business over the 10-year licence period. Of course, there are other factors which could still support an operation of below the 15% share benchmark, and these factors would be dilinerated in the last chapter - Recommendation, of this Report.

Summary

1) A "conservative" financial approach is adopted in this chapter when looking at the profitability analysis of the Telepoint Service Industry.

- Intake of new Telepoint Service users is gradually increasing from 20% to 65% of the annual page users in the first four years.
- Increase in new Telepoint Service user is peak at year four and growth rate decreases from year 5 with nearly no growth in the last 2 years. Industry experts look at a five-year

Table 5.4

Relationship of Market Size, Customer Base Size, and Its Financial Implications

Market Share of each operator (1)	Size of Customer Base (2)	Financial Attractiveness and Its Implications (3)
25%	88,000	Moderate Attractiveness ROI ~144%
20%	70,000	Attractive ROI~75%
15%	52,000	Break-even business Critical mass must be reached to survive
10%	35,000	Loss of all capital layout of HK$200 million Minor player Exit any time

Notes :

1) Hutchison Paging is not considered here.

2) The financial model in the previous section assumes a total of 350,000 Telepoint Service users over a 10-year period.

3) ROI is based on a total cumulative 10-yr revenue, without inflation adjustment and an initial capital outlay of HK$200 million. All revenue, cost and customer figures are from illustration 5.1 to 5.7.

window of opportunity.

- Annual revenue comes from only two sources - connection fee and service income. Charges are set at a very reasonable rate based on 1990 level.
- All the necessary costs and expenses to operate the Telepoint Service business are included and forecasted to the best knowledge at the time of writing. The major items are staff cost, system and base stations (i.e. Telepoles) cost, rentals of administration and engineering centres, advertising budgets and network charges to Hong Kong Telephone Co. Ltd.

2) Thus, the annual revenue is deemed achievable and net profit after tax is realistic. The financial tools used are the Profit & Loss Statement and Cash Flow Statement.

3) The industy size and annual revenue is forecasted to illustrate its attractiveness. At the peak of the industry (Year 5), the annual revenue will be HK$444 millions, and cumulative revenue of the industry for ten years will be HK$4,220 millions (all figures use 1991 as base).

4) A financial model of using three, four or five service operators is employed to forecast the profitability of each scenario. For the simplicity of illustration and calculation, an even distribution of customers among operators are used. The analysis shows that the industry can support four operators where they can have a positive cash balance by year four and ROI in a 10-year period is 144%.

5) The above also matches the current stand of the Hong Kong

Government to award four licenses - three to the current mobile telephone serivice operators, namely Hutchison Telecommuncation, HK Telecom CSL and Pacific Link, the fourth one to a new player - a consortium of Chevalier and OTC (Australia). The government's decision is based on the consideration that each operator can have a "reasonable" financial return, while a new local/foreigh investment can be introduced into the scene to uphold Hong Kong's image of fair and open competition, and the "open-door" policy to foreign investment.

6) The chapter concludes with an analysis of a more realistic and probable situation in the industry - Hutchison would dominate at least 50% of the share while the other three compete for the remaining half. The benchmark of survival is 15% share, i.e. 52,000 customer base in order to run a break-even business over the 10-year license period. There are, of course, other than financial reasons to stay in the Telepoint Service industry even for running below 15% share. These considerations will be delinerated in the last chapter of Recommendations.

CHAPTER VI

INDUSTRY STRUCTURE ANALYSIS AND STRATEGY CHOICES

Structural Characteristics Of Telepoint Service Industry

- An Emerging Industry

Telepoint Service industry is considered as an emerging industry which bears all the characteristics outlined below.[1] It is created by technological innovations through the cordless telephone technology improvements done in Europe. There is also an emergence of new consumer need from the rapidly increasing usage of paging and the limited frequency availability for the cellular mobile telephones. The essential characteristics of an emerging industry is that there is no rule of the past. Every competitor in this new industry will have to work and develop their own rules so that they can prosper. The absence of rules is both a risk and an opportunity.

This chapter will examine the characteristics facing by Telepoint Service industry, and the constraints which affect the development of the industry. The next chapter will follow with the analysis of strategic choices available.

Technology Changes

The new generation cordless telephone technology was developed

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[1] Porter, Michael E. Competitive Strategy : Techniques for Analyzing Industries and Competitors. New York : The Free Press, 1980.

primarily in UK, and further study was also done in the Continental Europe. Initially, there was no common industry standard which caused quite a confusion when the technology was first introduced in London. Hong Kong has learned the experience and would adopt the Common Air Interface (CAI) standard. Though Hong Kong is better off with a CAI standard, there is still doubt about the products configuration especially on the handsets.

Undefined Strategy

As there is only limited experience in the Telepoint Service industry, primarily negative inputs from UK, there is no right or wrong strategies being identified. The service operators can have different approaches to introduce products, positioning, marketing, servicing, promotion, and segmentation. One advantage is that three operators have already been in the paging market or cellular telephone market and has known each other quite well. The fourth one is a new comer which might bring entirely new approaches to the industry.

High Initial Cost

The introduction in UK was proven not that successful, which might have affected the development and production of the handsets and base stations. It might mean a high initial cost for the operators, and there is no timetable on the possible drop of the handset cost. The industry does not have experience of how long the learning curve will soon level off.

First-Time Buyer

There is a massive, essential marketing job in the industry to

induce substitution and get the buyer to purchase the new handsets and use Telepoint Service. The buyer must be informed about the new and additional features, and be convinced of its potential benefits. These benefits should outweigh any possible risks related to using the Telepoint Service.

Role of Government

"Positive Non-Interventionism", the basic principle of the Hong Kong Government, dictates that the role of the government is not in the financial subsidy which normally other governments might take. Instead, Hong Kong Government is providing the available spectrum, and creating a fair and open competitive environment. Such act avoids any government political interference to the future business growth and new investment decision.

Constraints on Industry Development

Threats from Suppliers

The basic supply and demand principle affects the long term cost of handsets and the number of manufacturers. Currently, there is only a very limited source of supply. (GPT of UK, seems to be the ONLY supplier meeting the government's requirement to produce products meeting CAI standard). Motorola would soon come up with compatiable handsets, but the production may be delayed due to some inherent technical questions. Some other manufacturers like Orbital, Fernantie claim to have CAI handsets, but it is still questionable. Thus, some operators might have to delay their Telepoint Service introduction schedule, contingent on their negotiation and relationship with GPT. There are also concerns on the quality

standard of some handsets.

The location and availability of base station sites are another indispensable element of success. The customers can only enjoy the Telepoint Service benefits when they can easily locate a base station site and make outgoing call. There are increasing signals from the prospective and current site supplies to negotiate for higher rental price due to increasing demand. It would directly affect the industry profit margin.

The current estimate is that each network will require 3,000 to 4,000 base stations to provide adequate coverage. Four operators will require a total of 12,000 to 16,000 sites to house all the base stations. Availability of sites will definitely be one of the major issue when opening up the network.

Lack of Successful Experience

Even though UK introduced Telepoint Service two years ago, there was no proven successful experience on the distribution channel, servicing, or maintenance which can be applied in Hong Kong. Each operator might interpret differently the lessons learnt in UK, and modify to suit local environment. The learning curve would vary dependent on respective operators' maturity and ability. It would contribute partly to the high initial cost of running the business. The advantage is that three service operators have been in the paging or cellular business and therefore can draw on a synergism.

Absence of Product Standardisation

Though the Common Air Interface (CAI) standard has been adopted on a broad sense, there are more indepth details to be agreed upon among service operators. e.g. synchronization and the sharing of

telepoint base stations because of the limited availability of sites. The Government could not interfere in every operational details, and it is really up to the service operators to reach a common consensus which would reduce the confusion among the public.

Possible Technology Replacement

Radio communication technology is rapidly changing. Currently, there are numerous works being done in Europe and North America like DECT, PCN. The most comparable technology to the current one being introduced in Hong Kong is the third generation cordless telephone (CT3) - i.e. Digital European Cordless Telephone (DECT). Ericsson, a giant in the industry, is now pushing the technology in the European and other markets. The Telepoint Service industry growth will be impeded if buyers perceive that the CT3 technology or the others will significantly and quickly replace the current CT2 products. Buyers would wait until the handset unit costs drop down dramatically or slowing down of the new technology development.

"TeleConfusion"

Customer confusion would be expected to be more serious as compared to the period with only paging and cellular telephone available. One of the causes is due to too many technology changes and updates. The public would begin to be aware of many different terms and introduction of new technology from news media, magazine or TV. Each technology would claim to be the best and fit today and tomorrow needs. And the other cause comes from a multiplicity approach of the four service operators. Each operator would follow their company objectives and send out the message to the public. The claims and counterclaims among the operators also contribute to such

"Teleconfusion". It would limit the growth of the industry because of the perceived risk of purchase by the public.

Fluctuating Product and Service Quality

With new player in the industry, limited successful experience abroad, there are high chances that the product and service quality will be fluctuating at the initial stage. This might result in a negatively affected image and credibility of the entire industry. However, the cellular telephone market has indicated that coverage of system, features, weight and size of the handset, clear marketing strategies, appropriate advertising and service quality are the factors leading to the success of the celluar telephone service business. It can also be decoded for the Telepoint Service Industry.

Factors in Strategy Selection[2]

Externalities in Industry Development

In an emerging industry like Telepoint Service in Hong Kong, one key issue that the four service operators have to consider is to balance between industry advocacy and pursuing its own self interest. Because of the potential problems of the industry image, credibility, "TeleConfusion" etc, the success of the Telepoint Service industry is highly dependent on the co-operation among the four service operators. The primary concern for the industry is inducing product substitution to use Telepoint Service and attracting first-time buyers. It should be in the long-run interest of each service

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[2] Cady, John F. & Buzzell, Robert D. Strategic Marketing. 1st. Little Brown, 1986.

operator to help promoting industry standardization, providing consistent product and service quality and developing a uniform image to the public.

This inherent need for the industry co-operation during the start up period might create a dilemma for the service operators. Each service operator might be driven to follow individual strategy in order to pursuit their marketing goals. Because of the wish to maintain its uniqueness and competitiveness, they might make other product claims and additional services resulting in overall negative impacts to the entire business. At the same time, customer confusion is continuing about what is the best.

A further implication of externality in the industry development is the possibility that a service operator might initially have to adopt strategy which does not match with its long-run goal. In such case, the operators might have to work and promote in areas which might not match their ultimate objective.

This "temporary" action might be necessary to develop the industry, and such investment outside the operators' ideal long-run position are part of the cost developing in an emerging industry, and would enjoy the benefits only when the public is building up the confidence in using Telepoint Service.

Role of Suppliers and Distribution Channels

Strategically, the service operators must be prepared for a possible threat from the suppliers and telepoint site providers. On one hand, when initial sales is slow, the manufacturers might have difficulties to cut unit cost from economies of scale. While on the other extreme, when sales is booming, the site providers might push up their site rental charges. Both situations will affect the profit margin of the service operators.

Similarly, the service operators might have to take a new look in the functioning of the current and future distribution channels in terms of product offering, servicing and convenience provided to the public. They might consider to involve new distribution channels, provide incentive for channels to expand and invest in facility, and might even have partnership with the operators. Early exploitation of this change can give the service operators strategic leverage.

Relationship among Competing Operators

What is the right way to live with competing service operators is a highly debatable issue. The presence of new entrants like Chevalier (OA) and subsequently their different marketing strategy, might promote resentments among the current operators. One possible problem in an emerging industry is to spend excessive resources defending the present equilibrium and perceived market position. This can be partly an emotional reaction to drive out the new entrant. It is likely for the operators' best return and the industry benefits to invest in building own strength and develop the industry demand.

Possible Strategies[3]

The Telepoint Service industry will achieve its overall maximum gain with a window of opportunity of 5 to 6 years when the followings are accomplished.

- Quick acceptance by the public with confidence.
- Creating the demand in the mass market
  (ideally equal to the paging market while fueling
  the growth of the paging market)

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3 Paley, Norton. The Manager's Guide to Competitive Marketing Strategies. American Management Association, 1989.

- Filling the personal mobile communication need which is currently a gap between paging and cellular telephone
- Slowing downn the introduction of DECT

Co-operation to Promote the Industry

The Post Office is responsible for making policies which allow the Telepoint Service industry to develop, promote and prosper. With the government paving the way and creating the environment, it is really up to the industry, via the four service operators, to take up the active and initiative role in making the business successful in Hong Kong.

As analyzed in this Chapter, the number one factor to consider is the industry development. It is envisaged that some kind of industry association or quasi-association should be formed to address common problems faced - what are the joint actions and programs that all four service operators can work together, and ultimately achieve the objective to boom up the whole industry. There are many excellent examples that other industries are currently doing eg. Hong Kong Office Equipment Association, Hong Kong Computer Association, etc.

One point worth noting is that while the operators are promoting co-operation among themselves to educate and develop the industry, they should not lose sight in building their own uniqueness. This would be analyzed in the next chapter.

Penetration Pricing[4]

Through the interviews and customer need analysis, recurrent service charges are not a great factor in determining whether or not

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[4] McGuigan, James R. & Moyer, R. C. Managerial Economics. 4th ed. St. Paul : West Publishing Company, 1986.

the public will subscribe to the Telepoint service. The real bar to use the service is the initial cost of purchasing the handset. Current data from Hong Kong and other countries for other mobile services has shown that customers are willing to pay up to 1.5 times their monthly salary for a mobile communication instrument.

Price Structure

Handset

The business scope of the service operators is to run the service and gain from the service income whenever the airtime service is incurred. Thus, the service operators should have little direct interest in any profit from the sale of handsets. As such, if the operators deem a requirement to source terminal equipment at the outset to encourage the growth and take up of Telepoint, then the products should be transferred at cost price plus minimal mark-up to the channel distributions. The distribution will need to be encouraged to sell the Telepoint service when they are selling the handsets. Respective incentive programs should be determined by each service operators.

For the purposes of this research, it is assumed that a handset will be sourced costing STG100 each and that the distributors will sell for the local currency equivalent of STG195 and that their retail price will be acceptable to the market.

Recurrent Charges

It is forecasted that the average Telepoint call duration will be 2 - 2.5 minutes giving a revenue of HK$1 - $1.25 per call. The average number of calls per day is expected to be 2 - 2.5 which, with

an average number of days per month of 30, gives a total monthly call count of 60-75. The total monthly average call charge is expected to be HK$75-$100 per customer which compares well with the more expensive cellular service at HK$180-$300 (excluding the basic subsciption fee of approx. HK$350).

Hong Kong has no timed calls for telephony. From business and domestic telephones all local calls are free. From Public Call Offices all local calls are a flat rate unit fee of HK$1 for any duration of call. It is estimated, however, that calls from Public Call Offices have an average duration of 2-3 minutes which would put the call charges at HK$0.33 - 0.50 per minute. Cellular calls are timed and call charges vary enormously depending upon the number of free minutes allowed and break points over which call charges reduce. Overall, however, the cellular companies are looking for an average per minute charge of HK$1.50 - $2.00. Telepoint cannot expect to command the sort of call fees pertaining to cellular and it is assumed that the per minute charge will be levied at HK$0.50 per minute.

In cellular telephony, there is a "fixed" monthly charge for using main exchange equipment. It is proposed that the Telepoint service also charges a standing service charge set at HK$75 per month initially. Not only will this bring recurring revenue but it will also act as a deterrent to those prospective customers that cannot really afford the service and are prospective bad debt risks.

Following on from the above, the use of connection fees is also used to deter prospective customers who cannot really afford the service and are prospective bad debt risks. Connection fees are also levied to offset the cost of processing applications to join the network and activating the handsets on the system. It is proposed the Connection Fee be set at HK$200 at the outset.

It is proposed that, at the outset, international calls will not be allowed. Customer demand for international call capability would have to be monitored carefully and could be introduced if there is sufficient demand. Whether or not the market would stand a premium of more than the proposed charge of HK$0.50 per minute over and above the prevailing international call rates is open to question and would need to be studied. What is certain is that, in all probability, the base stations would have to recognize the international call prefixes and carry out an on-line verification with the exchange centre. This would almost certainly require leased circuits from the base stations and the use of concentrators for these circuits. The cost of these is not included in this research.

Summary

1) Telepoint Service industry is an emerging industry bearing the characteristics of having no rules of the past. The industry is driven by both technological innovations and market demands. Hong Kong would adopt the Common Air Interface (CAI) standard to ensure compatibility to any network and promote economy of scale. However, the industry is having the characteristics of undefined strategy from the past, high initial cost to provide extensive coverage, subsitution to existing products, being substituted from other new product and being driven by the "Positive Non-Interventionism" of the Hong Kong Government.

2) The industry is also facing the constraints of limited number of suppliers, lack of successful experience, absence of product standardization, short opportunity window, possible technology replacement, teleconfusion to public, fluctuating product and service

quality, lack of favourable factors driving economy of scale and technology advancement from competition.

3) Having these characteristics and constraints, selection of strategies will be important to bring the success to the industry. The primary concern for the industry is inducing product substitution to use Telepoint Service and attracting first-time buyers. Industy co-operation would help promoting industry standardisation, providing consistent product and service quality and developing uniform image to the public. Each service operator would have individual strategy to pursuit their marketing goals. Roles of suppliers, distribution channels, relationship among competing operators would shape their individual strategies. If the dilemma of (i) quick acceptance by public; (ii) creating demand in the mass market; (iii) filling up the gap between paging and cellular telephone; and (iv) slowing down the product substitution by DECT can be accomplished, the Telepoint Service industry may achieve its maximum gain within a short window of opportunity of 5-6 years.

4) Apart from the service and product quality, radio coverage and product acceptance, pricing of the instrument and substitution will also determine the success of the industry. The service charge is expected to be around one-third to one-fourth of the cellular service and in the similar range as public call office.

CHAPTER VII

DIFFERENTIATION

As discussed in the previous chapter, it is recommended that the industry should adopt overall strategies to build up the public confidence and acceptance of the product services. However, in the long run, the individual operators should pursue a differentiation strategy in their own interest.[1] Some companies would grow together with the competition while the entire industry is booming at the early growth stage. They lose sight to build up their uniqueness during the profitable period. In the long run, they are vulnerable and suffer. This is partly the natural consequence of "perfect" competition in a free economy like Hong Kong. Hutchison group has set a vivid example in the radio communication industry that its subsidiaries, Hutchison Paging and Hutchison Telephone follow through their long term strategy to pursuit differentiation via building market share and up-market positioning respectively.

In a differentiation strategy, the service operators should pursue something unique in the industry that would be highly valued by the buyers. They should select one or more attributes that many buyers will perceive as important, and match their individual strength and weakness to position itself to meet those needs.[2] In this chapter, we will identify those areas worthwhile to look into. There can be many different ways to achieve differentiation strategy if a

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[1] Porter, Michael E. Competitive Advantage : Creating and Substaining Superior Performance. New York : The Free Press, 1985.

[2] Peters, Thomas J. & Waterman, Robert H. In Search of Excellence : Lessons from American's Best-Run Companies. New York : Warner Books, 1982.

number of attributes are widely valued by buyers. These possible ways are outlined below. Above that, it is even better that the operators can create a sustainable differentiation which will ultimately put them in an above average performance. This will be further elaborated in the next chapter.

Increase Source of Uniqueness

Alternative Differentiation Sources

The operator can increase its overall differentiation by exploring more sources of uniqueness on top of the product itself. As most operators come with a consortium, their partners might provide such additional value. Hutchison is a good example of a successful differentiation steming from the partnership with a high technology company - Motorola. Other examples include the telecommunication expertise from CSL; Chevalier (OA), though a new comer, has an unique advantage of a mass base office equipment users and good maintenance service track records.

Product Performance

Even with the same CT2 technology and CAI standard, there will inevitably be some variations in the product performance among the operators. The operators must make sure they understand the products, properly promote its performance, and take steps to bring the actual use consistent with the claims. The following simple rules should be noted.

- Thoroughly test the products before putting claims to the market
- Design effective manuals and other instructions for easy use

- Provide training/hot-line enquiries to buyers to improve the actual use, either directly or via channels
- Clearly and timely inform the users which area are covered effectively under the transmission network

Without such conscientious and unpromising attitude towards the product performance standard, many early users would drop out. It is repeated in other parts of this Report that users can switch between operators very easily and without much cost incurred. Thus, by pursuing this strategy, the company can be at equal status, if not differentiated better than the competition.

Promotion Theme

The company's differentiation effect can be multiplied when the promotion themes match the strategy correctly. The reinforcement result can come from various sources other than through the obvious advertising media. The promotional activities chosen should match consistently with the intended base for differentiation. One might emphasize on the ability for good and effective transmission, some might focus on the convenience of their retail outlets, while the other might talk about their close personal attention and service to the buyers.

Product Information

The proper bundling of product related information can often enhance differentiation. It is a general consensus from the service operators that the new Telepoint Service has to meet the practical needs of the customers.

Their demands are higher, and they are always comparing the unique benefits versus using pager and cellular telephone. Thus, if they know the product better and achieve satisfactory result, it becomes an additional source of differentiation to the company.

This part seems so obvious that it sometimes gets buried and forgotten while the marketing is spending the budget on other "differentiation" activities. The following basic answers have to be provided to the users like : effective description of how to operate the handset, where to locate base stations, and how to service it. These can align the intended use (as pushed by marketing) with the actual use by the customer, thus minimizing any possible frustration.

Optimize Cost of Differentiation

To achieve differentiation result and meet customers needs, usually additional resources are required. However, there are other areas where no extra money has to invest, and can still achieve the differentiation effects. This is a challenge for the sales and marketing to look for optimization of resources spent, and make the cost to become an advantage in achieving differentiation.

Explore Less Costly Source

Many activities can be made more unique at little extra cost. Most service operators will intend to differentiate the company from others by providing a good customer service via the many retail outlets; from their existing paging centers. The aggregate effect of such strategy can be complemented greatly when a comprehensive human resources plan is included as part of the strategy. Selection of people, training, and incentive shall be designed to match with the

strategy, at no extra cost. The net result is that with a proper training, and a consistent promotion theme among the retail outlets employee, this will have a good linkage with the customer. Whoever does it better can command and improve differentiation.

The new entrant, Chevalier (OA), might consider to use other channel resources which are currently not being used. Examples are reputable chain stores selling personal accessories or electronics. The cost of doing such search is inexpensive but might open up a new dimension to serve the public, and prove to be distinguishable.

Maximize Past Promotion Impact

It is important to find efficient and cost-effective ways of creating perceived value to the end user. If the differentiation can draw on promotion impacts from past investment, the effect is nearly cost-free.

Some operators have promoted their company's reputation via providing high technology products, buyers' confidence, highest numbers of user population, fast and convenient services etc. the impacts have been built up in the users. Their future promotions can draw on such highlights, and it would be less costly to do all over again.

Evaluate Effectiveness

In addition to seeking a cost advantage in differentiating, the operator must also pay attention to lowering cost in activities unrelated to the chosen differentiate strategy. Resource is limited. Programs and activities have to be evaluated for its effectiveness to match differentiation. For those that do not change the buyer's perceived and actual value of CT2, they should be shelved.

Create Uniqueness

Shifting Buyer Values

As Telepoint Service is intended to enhance the personal communication ability with definitive improvements over paging, the requirements of the buyers are much more demanding than using pager alone. To convince the buyers for such new decision, it might involve a change or modifying their perceived value on the product. If the company is successful to shift the buyers towards its side, an uniqueness about the company is created. Ways to shift buyers values are suggested below.

- Deploy more professional retail outlet salesman
- Be patient to explain the usage and answer questions
- Involve more technical sales in targeting the business sector
- Upgrade the image from a simple paging position to a well established, well organized status

Discovering Unrecognized Buying Motives

Finding important buying motives that users and competitors have not recognized offers the major opportunity to achieve differentiation. Purchase criteria that are often unrecognized are mostly practical use criteria. For example, Hutchison has started to promote their products which can fulfil the need of a more personal communication among family members. Hutchison is creating its uniqueness while expanding the paging and cellular telephone market.

Changing Channel Requirements

Most service operators will make use of the existing paging

retail outlets as their major channels for serving the customers. However, the Hong Kong economy is changing fast, there are more and more chain store outlets which are looking for new business to support their growth. They usually command a very high reputation and service convenience to the public. This changing channel environment might be a good differentiation from the existing paging outlet.

Changing Buyer Behaviour

Even though the immediate target for the Telepoint Service industry is the existing pager users, their use criteria is also changing with the new additional features of the Telepoint Services. The buyers are increasingly more conscious about the value of the money they give out. They look for better service, consistent quality and confidence in the service operators. Some might shift to reputable shops to get their service because of confidence built up in the past. If the company can look for, and identify the rapidly changing requirement of prospective buyer group, they are building and creating uniqueness. The end result is a clear differentiation and advantage over competition.

Summary

1) Besides building up the public confidence and acceptance of the product services, each individual operator should pursue a differentiation strategy. They should select one or more attributes that many buyers will perceive as important, and match their individual strength and weakness to position itself to meet their needs. Each operator should explore more sources of uniqueness on top of the product itself, market its product performance and implement promotion themes to match the strategy correctly in order to increase

source of uniqueness.

2) The business can be run in a cost effective way with maximum profitability and creat high differentiation through exploring less costly source and maximizing past promotion impact. Those having existing paging service or cellular telephone service, would have initial edges over the others.

3) Shifting buyer values to the product, discovering unrecognized buying motives, changing channel requirement of service industry and changing buyer behaviour would help to create uniqueness. The above factors discussed will be essential to differentiate itself from other competitors.

CHAPTER VIII

RECOMMENDATIONS

This chapter is dedicated to list some possible actions which might help the service operators to achieve a differentiation strategy better than the competition. The recommendations listed are based on a systematic analysis of the many valuable feedbacks from various sources during interviews, and the unique nature of the industry under a free and open competitive environment in Hong Kong.

Distribution Channel Selection[1]

The immediate target market for Telephone Service is the existing 711,000 pager users. This paging market is expanding and consisted of different walks of people, where the individual consumers are the primary target for the Telepoint Service. Distribution is thus the number one key issue to be addressed. Most of the service operators have adopted a forward integration to include the paging operators in their consortium which provides the retail outlets for the consumers. In order to make the Telepoint Service more accessible and convenient to the target consumer market, more innovative approaches to distribution channel selection should be adopted. Other specialty outlets like reputable chain stores selling personal accessories, electronics, should be considered as the possible outlets location. Not only will the distribution channel sell the handset, they should have an incentive to promote the Telepoint Service through money rebate program that tie up the service revenue generated.

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[1] Jolson, Marvin A. Marketing Management. New York : MacMillan Publishing, 1978.

Price Policy

In chapter VI, a penetration pricing strategy for the industry is proposed. The assumption and calculation of the pricing level has been analyzed in details for handsets and recurrent service charges. This is to reinforce that each operator should establish a price policy so that the initial pricing level of the Telepoint Service charge and the handset cost should be acceptable to the customers. As Telepoint Service is a niche product between the paging and cellular telephone, the correct pricing should reflect its product positioning. It is strongly advised that during the initial introductory period, the range of pricing from the four service operators should be within a reasonable range so as to avoid creating customers confusion. Providing better service and establishing its own differentiation are much better than price cutting which ultimately will affect the revenue and gross margin.[2]

Product Quality

These days the level of consumer demands is increasing and they would not sacrifice and forgive those companies which cheat them with an inferior product. The switching cost[3] between different service operators is very low compared to other products, i.e. the consumers can shift away easily. The customers' loyalty are dependent on the consistent performance of the services offered by the company. With this principle in mind, the service operator should be very cautious when they introduce their handsets in the market, and the

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[2] Shycon, H. N. & Sprague, C. R. "Put a Price Tag on Your Customer Servicing Levels." Harvard Business Review, July-August, 1975.

[3] Porter, Michael E. Competitive Strategy. New York : The Free Press, 1980.

availability of an effective transmission coverage area. There might be an urge during product introduction stage to bring in the number one new product and services in the market so as to skim the cream. Bearing that product quality is a very critical element and could not be compromised, a delay in the product introduction will sometimes be preferable. This will be to the benefit of the company and the overall industry.

Service Capability

Service is an area of providing, and substaining the differentiation for the company. The key to success in the Telepoint Service industry is to keep the customer base, and then expand from good referrals by the users. Thus, the scope of service can range from phone enquiry to over the counter. Hot-line service might be needed to answer questions and concerns. Warranty and maintenance services of the handset, should be provided conveniently. Communication on a regular basis with the users, additional benefits like the establishment of a users' club, credit service.... and so on are deemed possible and well-accepted. Each individual service operator should look at its own strength and weakness, along side with the differentiation strategy that it adopts and designs the best services that should be demanded by the customers.

Brand Identification

Hutchison, through its consistent marketing work, establishes a well-known brand identification of high technology and confidence to the market. It builds up their strength and dominates both the paging and cellular mobile telephone market. It will be for sure that Hutchison will still pursue with this brand identification in

the Telepoint Service and in the future radio communication expansion. As mentioned previously, Hutchison has occupied over 50% of market share for paging service which Telepoint Service targets. The other consortium of HK Telecom CSL, Star Paging and Sun Hung Kei Industry has around 30% of the market share. These will create two major players in the Telepoint Serice industry. They have reasonable customer base to promote their new services. The other service operators should also look for a niche area where they can establish their own brand identification and secure the market share. This can be accomplished through their pricing level, the image of the distribution channels and the sales force representing the company. The establishment of a unique brand identification will help the service operators to stay with the radio communication technology and tap into the new potential such as running the fifth cellular telephone system using GSM.

Push and Pull

The firm's marketing objective and the type of early users will determine the distribution channels of how to push the handsets and the Telepoint Services. The whole action will be complemented by the pull through effect from the advertising promotion and the selling force. Another new area that is worth pursuing is the corporate accounts. Most of this accounts might have already got their employees using paging systems and it is most appropriate to have a complete package that can offer to their unique requirement.

Vertical Integration

The degree of vertical integration is largely dependent on the differentiation strategy that the service operator employs. It might

include a forward integration on getting the distribution channels, either exclusive or own retail outlets, via a joint program with some other business entities. Backward integration will include the incorporation of various types of service in their business, and even the linkage with prospective new supplier of handset and base station in the near future. The supplier linkage will be something that should be worth looking at in the future, as Hutchison and Motorola combination has proven to be one of the success factor in the market. A good linkage would minimize the fluctuation of cost and have a better insight into the future product development and planning for such opportunity.

Possible Strategies of Minor Players

Members of the four prospective Telepoint Service licence holders, are,

- Hutchison Paging Ltd. (joint venture of Hutchison Telecommunication and Motorola)
- Consortium of HK Telecom CSL, Star Paging (Holding) Ltd. and Sun Hung Kei (Hong Kong) Industries Ltd.
- Personal Communications Ltd. (joint venture of First Pacific, ABC Paging, British Telecommunications PLC, and Sun Hung Kei Property Ltd.)
- Chevalier (Telepoint) Ltd. (joint venture of Chevalier (OA) and OTC International Ltd.)

which would take over 85% market share of paging service industry.

Since the target customer of Telepoint Service would be the paging service users, the first two licence holders would have a good customer base to develop the business. However, the other two consortia should work their lives out of these two strong players.

They could establish their strategies of

- pairing up themselves to break through the market dominance
- building up its own brand identification through providing good service quality such as speedy connection time, quick response to warranty, claims and complain
- enhancing the after sales services and promoting additional benefits through users' club, credit service, ... etc.
- aggressively sourcing the handset for the system because product quality and features of handset also determine the acceptance of the system
- offering aggressive financial package to buyers for purchase of handset and the service

The strategies selected should match its own strength and weakness and the market demands. The primary objective is to emphasize the market share rather than the bottom line in keeping the system profitable.

The consortium of Chevalier (OA) and OTC may be in the weakest position as the other consortium with First Pacific has some paging users from their reputable partner, ABC Paging. Chevalier (OA) could use the CT2 licence as a vehicle to be the fourth operator in running the digital cellular telephone service which would generate huge cash revenue.

Possible Strategies of Major Players

As explained before, the market share may be dominated by two strong players. Hutchison Paging Limited may probably obtain the

40-50% market share. Hong Kong Telecom CSL may also obtain another 20-30% market share because the pager users are the first target customers and these companies have already occupied over 75% market share of paging services industry.

These two companies may take up the following strategies leading to "Star" performance.

- enhance the control of distribution network through the sales shops and appointed dealers in order to keep up the company image;
- expand the distribution network to improve market penetration;
- keep up the service quality in order to differentiate from other players;
- build up the company image of providing good quality service to attract the customers other than cutting price;
- introduce add-on features such as integrating the features of voice mail in auto pager and message bank in cellular telephone network to provide quasi two-way communication;
- take advantages of the experience and the capabilities from operating cellular telephone system to improve the customers acceptance for the new Telepoint Service;
- take advantages of the financial strength and the background of the companies to extensively market the service;

- set up a good network with adequate radio coverage when launching the service because the customers are so intelligent that they would quickly learn that which network can provide the best radio coverage.

The main objectives of these two players are to:

- differentiate the provided service from others,
- secure and finally expand the market share to keep the company survive with profit, and
- shorten the payback period and make the services operation become cash generating machine.

With carefully choosing the strategies which match the strength and weakness of the company, it is not difficult to obtain the expected market share.

Summary

(1) Last chapter has globally discussed the factors to create differentiation. This section reviews the recommendations to each service operator. Since the first target customer of Telepoint Service is the paging service users, making use of distribution channel of pager is the immediate answer to the selection of distribution channel. It is also the reason why most service operators have adopted a forward integration to include the paging operators in their consortium which provides the retail outlet for the customers. More innovative approaches to distribution channels

selection such as using reputable chain stores, should be adopted. Agressive incentive scheme should be given to attract the agents to promote the Telepoint Service while selling the handset.

(2) Pricing is an important issue to bring the industry to success. The correct pricing should reflect its product positioning between paging and cellular telephone. The pricing from four service operators should be within a reasonable range. Providing better service and establishing its own differentiation are much better than price cutting. It also relates to product quality. The switching cost between different service operators is relatively low. All service operators would be very cautious about their handset and effective coverage area.

(3) Service quality and brand identification are another key points to the success of service industry. Extensive supporting services with good system service will keep the customer confidence with the network. Each individual service operator should look at its own strength and weakness, alongside with the differentiation strategy that it adopts and designs the best services. From the market shares in paging market, it indicates that there will be two major players, namely Hutchison and consortium of HK Telecom CSL, Star Paging and Sun Hung Kei Industry in the Telepoint Service industry. The other service operators should also look for a niche area through their pricing level, the image of the distribution channels and individual sales forces.

(4) Apart from considering marketing objectives, forward and backward integration of various types of services, linking with prospective new supplier of handset and base station are worth considering. A good linkage would minimise the fluctuation of cost and have a better insight into the future product development and

planning.

(5) The last part is to review the possible strategies of the minor players. Pairing up with two operators can help to break through the dominance of two strong players. Other strategies of building up brand identification, enhancing after sales support, linkage of supplier, attractive incentive scheme and aggressive financial package may help to keep the system running with competitiveness.

(6) Chevalier (OA) has shown great interest in obtaining the new licence to run the digital cellular telephone service. Thus, running the CT2 network may be a vehicle to achieve the long term objective of running a cellular network which could generate a huge cash revenue.

CHAPTER IX

CONCLUSION

As Hong Kong steps into the 90's, there is an ever increasing demand to make Hong Kong in a more competitive advantage position in the international scene. Advance radio communication services will build up the international image of Hong Kong. It is a general consensus that with an efficient and reliable communication, Hong Kong will significantly build up her external competitiveness and attract more foreign investment. Hong Kong people, through both their business and personal lives, will also be greatly beneficial from being international. This has been demonstrated vividly in the 80's from the growth of the radio communication service market, and the phenomenal rate of product acceptance.

Under such circumstances, Telepoint Service, named as the second generation cordless telephone technology (CT2) comes into Hong Kong at the right timing. This emerging new service industry should have an opportunity to be a viable, profitable business. This research paper supports the above conclusion based on a comprehensive and indepth studies.

The overall radio communication service market was analyzed and each type of service was reviewed with its growth opportunity. The data collected reveals that Hong Kong is very open to accept new technologies and services. The business environment and the public are actively adopting the various radio communication services to improve their personal life and be more competitive in business.

The finance model, based on accepted assumptions in the industry, shows that Telepoint Service industry is a viable and economically

feasible business. Hong Kong Government is also adopting similar approaches to issue four licences to enable four operators to run the service. The overall industry profitability, in a 10-year period, should provide sufficient incentive to invest. Almost without exception, the service operators look far beyond this 10-year period and the "coming" CT2 technology. Through providing the Telepoint Service, they are preparing the company with more operation and technical experiences, building up the infrastructure and training qualified people in order to tap into the fast changing technologies. They would like to be at a competitive advantage to win the opportunities.

The interviews with industry leading firms and findings from literature surveys reveal that the Telepoint Service bears the major characteristics of an emerging industry. The constraints affecting its development are analyzed in the previous chapters. It is proposed that the overall interest of the industry and the firms are preserved when they practice a common strategy to educate and develop the industry, adopt a penetration pricing to induce new trials, and co-operate among themeselves to avoid unnecessary resources waste due to retaliation.

Another aspect of the findings reveals that each individual service operator should pursue a differentiate strategy to achieve a long-run profit in the competitive environment. The service operator should match their respective strength and weaknesses with the recommended actions to achieve sustainable differentiation advantages. These possible actions are distribution channel selection, price policy, product quality, service capability, brand identification, push and pull, and vertical integration.

The highly probable uneven distribution of customer base is likely to force the minor players to take aggressive strategies in approaching the market. For the consortium of Chevalier (OA), they might view the

CT2 licence as a vehicle to secure the new licence in running the cellular telephone services which could generate huge cash revenue.

Lastly, based on overall performance of the radio communication industry and interviewee's comments, it is concluded that the Post Office of Hong Kong Government is fulfilling its supportive role and helps the growth of the radio communication industry. The government encourages and practices a fair and open competitive environment, sets only regulations which are only necessary, and promotes entrepreneurship. Competition under a free economy will bring benefits to Hong Kong and her people.

APPENDIX 1

INTERVIEWS

Au, M. H.	Hong Kong Post Office	Interview	February, 1991
Ho, Alfred	Hutchison Telephone	Interview	February, 1991
Kong, Eric	Star Paging (Holdings)	Interview	February, 1991
Lau, Danny	Hong Kong Post Office	Interview	February, 1991
Tong, T. K.	Hong Kong Post Office	Interview	February, 1991
Tsui, Lawrence	Chevalier (OA) International	Interview	February, 1991
Wong, Kin	Hong Kong Telecom CSL	Interview	February, 1991
Wong, M. H.	Hong Kong Post Office	Interview	February, 1991
Woodlock, C.	Hong Kong Telecom CSL	Interview	February, 1991
Cheung, Alex	Telecom Service	Interview	March, 1991
Fok, Sylvia	Mobile One & Co. Ltd.	Interview	March, 1991
Goldstein, Henry R.	First Pacific	Interview	March, 1991
Leung, Thomas	First Pacific	Interview	March, 1991
Tse, Michael	ABC Communication	Interview	March, 1991
Wong, Melyne	First Pacific	Interview	March, 1991

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APPENDIX 2

INTERVIEW QUESTIONS FOR
COMMERCIAL COMPANIES

February 4, 1991

Mr Clive Woodlock
Manager
Hong Kong Telecom CSL
36/F., China Resources Building
26 Harbour Road
Wanchai, Hong Kong
Fax : 7807267

Dear Mr Woodlock

Research Project on Radio Communication Market in Hong Kong

We are a group of MBA students in the Chinese University of Hong Kong, and are currently compiling a project study of the subject matter under the supervisor of Professor Mun Kin-Chok.

The Radio Communication Market is booming in the last decade, and we envisage that the current momentum is going even faster in the 90's. This would undoubtedly put HK at the technological forefront in the Asia Pacific Region.

Your Company has been known to be one of the leaders in this field, and is constantly providing innovation products and superb services to the Hong Kong community. We believe your viewpoints should be representative of the industry.

Attached please find a list of questions which we would appreciate that you can share your thoughts with us. The raw data collected would be kept to the strictest confidence, and no specific Company's name would be referred in our research project.

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We would appreciate very much if you can allow a 30-minute interview with us within the next 2 weeks. I would give you a call to confirm the appointment as convenient to you.

Best regards

Alex Cheng C. W.

Arthur Yeung T.H.

Mun Kin-Chok, Professor
Project Advisor

Encl.

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SUGGESTED TOPICS FOR DISCUSSION

(1) How do you feel about the Radio Communication Market? Is it expanding as predicted? At what Rate?

(2) What are the characteristics of the market? Threats and Opportunities (external and internal).

(3) What do you think about CT2? Is this a promising product? Profitable?

(4) How would you position CT2 versus pager and mobile telephone?

(5) Do you think there is a fair and perfect competition in the market? Is the market open for new-comer?

(6) Do you consider Radio Communication Market a high risk, high return investment?

(7) What are the factors in running a successful service operator business?

(8) What are the problems you face today?

(9) How would you view your Company expansion in 3 and 5 years from now?

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APPENDIX 3

INTERVIEW QUESTIONS FOR
POST OFFICE

February 5, 1991

Mr T. K. Tong
Controller
Hong Kong Post Office
Telecommunication Branch
5/F., Sincere Building
173 Des Voeux Road
Central, Hong Kong

Dear Mr Tong

Re : Research Project on Hong Kong Radio Communication Technology and Trend

We are a group of MBA students in the Chinese University of Hong Kong, and are currently compiling a project study of the subject matter under the supervision of Professor Mun Kui-Chok.

In areas of high technology and huge investment like Radio Communication, governments are always playing a very vital role in the entire progress. It was witnessed, in the past years, that your Department has been very active in setting the direction and ensuring an open competitive environment. As a result, the public is benefitting from very advanced world-class products, and excellent services from a great number of service operators.

Attached please find a list of questions which we would like to solicit your expert opinions. The raw data collected would be kept in the strictest confidence, and no specific name would be referred in our research project.

...../2

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We would appreciate very much if you can allow a 30-minute interview with us within the next 2 weeks. I would give you a call to confirm the appointment as convenient to you.

Best regards

Alex Cheng C. W.

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SUGGESTED TOPICS FOR DISCUSSION

How does the government identify the current and future needs of the public in Radio Communication?

What benefit would HK society benefit from such rapid technological development?

Why is the government taking such an active role?

Do you feel the current market environment is free and open for new entrants?

How does the government officials keep up the trend, and set good directions?

What threats do you anticipate in the Radio Communication industry?

Is it worthwhile to introduce CT2 when the next generation is coming?

What is the criteria in selecting CT2 service operation?

What are the factors, in your viewpoint, which lead to a successful service operator business?

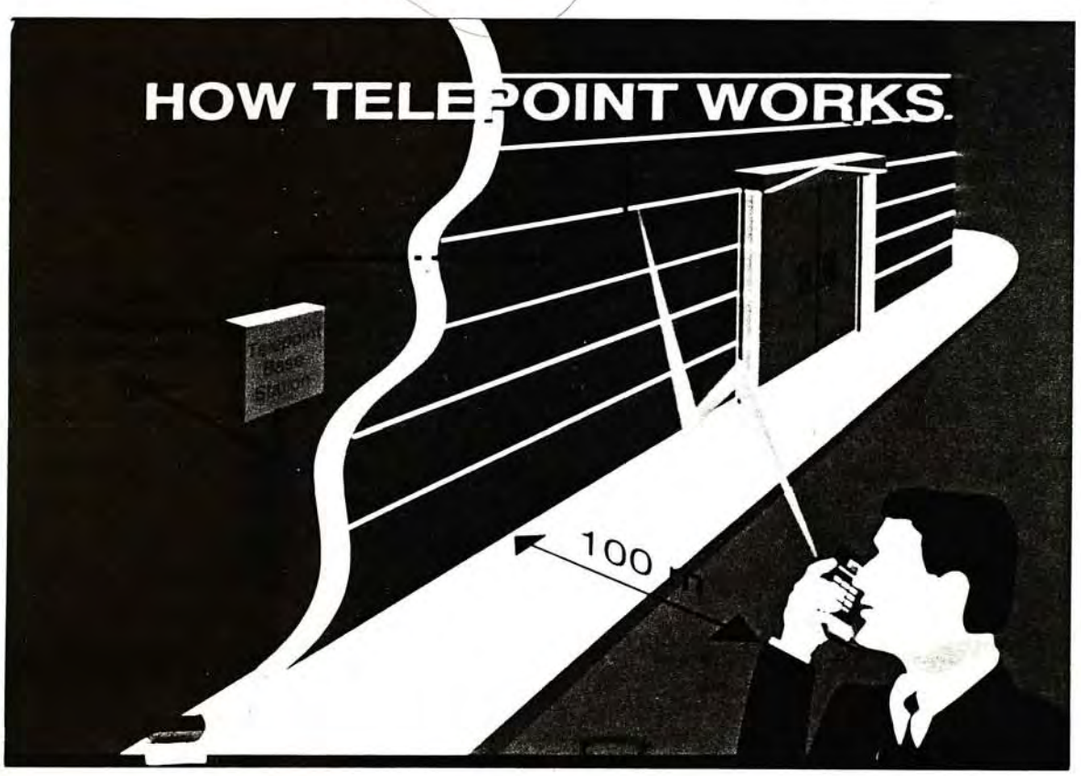
APPENDIX 4

DISTRIBUTION OF VHF PAGING SERVICE LICENCE

Hutchison Paging	occupies	7	VHF	licences
ABC Paging	occupies	3	VHF	licences
Star Paging	occupies	4	VHF	licences
Hong Kong Telecom CSL	occupies	2	VHF	licences
Telecom Services	occupies	2	VHF	licences
BB Paging	occupies	1	VHF	licences
Asia Paging	occupies	1	VHF	licences

Source : Telecommunications Branch, Hong Kong Post Office.

Appendix 5



Source : Hong Kong Telecom CSL

Appendix 6

CT2's Callpoint application will certainly appeal to pager-users and businesspersons who, for example, must maintain frequent contacts at an affordable cost with their offices, staff and customers. Base stations will be located at restaurants and public transport terminals, for example, ferry piers as seen in the picture. The antenna shown above the phone booth is a typical unobtrusive base station antenna.

第二代無線電話服務收費相宜，特別適用於那些需常與外間保持密切聯絡的人士。接駁站將設置於公共交通地點，如酒樓、渡海小輪碼頭等。圖中電話亭右上角之白色天線是典型第二代無線電話接駁站天線。

Source : Hong Kong Telecom CSL

Appendix 7

Callpoint hardware -- the base station and antenna -- will be unobtrusive. Note that the frisbee dish antenna in the picture is a typical antenna used for shopping malls and concourses. Callpoint antennae will be selected to suit the physical and esthetic requirements of each base station site.

第二代無線電話服務的硬件—接駁站連天線—絶不會造成任何不便。圖中白色碟型物體便是適用於各商場及大堂的典型天線。接駁站不同種類天線的應用將視乎各場地之需要而定。

Source : Hong Kong Telecom CSL

Appendix 8

Shops and convenience stores are among the various suitable sites for the callpoint base stations to be installed throughout the territory by callpoint service providers. The base stations, which can be hidden, for example, inside storage cabinets, will be linked to antennae of different shapes and always unobtrusive. Note the typical antenna pictured here, placed at the right corner of the store awning above the sign.

商場與便利店皆是安裝第二代無線電話接駁站的理想地點。由於接駁站能裝置於如儲物櫃內的隱蔽地方，故在連接不同型狀天線後仍不會造成任何不便。圖中便利店屋篷右上角的天線，是典型接駁站採用的天線。

Source : Hong Kong Telecom CSL

Appendix 9

Callpoint base stations will be situated in thousands of convenient locations, from petrol to MTR stations. Users will be able to place local and international calls from virtually anywhere once they step within range of a callpoint base station.

接駁站將設置於過千個不同地點，包括油站、地鐵站、商場等地方。第二代無線電話用戶將可在接駁站指定範圍內任何地點打出本地及長途電話。

Source : Hong Kong Telecom CSL

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